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JUNE 22, 1940

CONTENTS AND SUBJECT INDEX

Regurgitation Jaundice: Clinical Differentiation of the Common Forms, with Particular Reference to the Degree of Biliary Obstruction. C. J. Watson, M.D., Minneapolis 2427

The Surgical Treatment of Lead Encephalopathy with Particular Reference to the Prevention of Sequelae. W. Tracy Haverfield, M.D.; P. C. Bucy, M.D., and Anna S. Elonen, M.A., Chicago.....2432

The Ocular Manifestations of Ariboflavinosis: A Progress Note. V. P. Sydenstricker, M.D., Augusta, Ga.; W. H. Sebrell, M.D., Washington, D. C.; H. M. Cleckley, M.D., Augusta, Ga., and H. D. Kruse, M.D., New York.....2437

The Treatment of Prepuberal Vulvovaginitis with a New Synthetic Estrogen: Preliminary Report. Joseph D. Russ, M.D., and Conrad G. Collins, M.D., New Orleans.2446

Histaminase in the Treatment of Hay Fever. Edmund L. Keeney, M.D., Baltimore 2448

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

The Hot Douche. C. A. Anderson, M.D., Burlington, N. C.....2449

A New Instrument for Safely Decompressing the Cecum During Cecostomy. Orvar Swenson, M.D., Boston 2450

Pedunculated Fibrolipoma of the Vulva. George de Tarnowsky, M.D., Chicago.....2451

SPECIAL ARTICLE

Conferences on Therapy: The Treatment of Blood Disorders: IV. Roentgen Therapy.....2451

COUNCIL ON PHYSICAL THERAPY 2457

COUNCIL ON FOODS

Effect of Calcium and Phosphorus on Retention of Lead by Growing Organism. Ludwig G. Lederer, M.D., and Franklin C. Bing, Ph.D., Chicago 2457

EDITORIALS

The Platform of the American Medical Association.....2462

The 1940 Session.....2462

Fetal Function of the Thyroid..2463

CURRENT COMMENT

Frank Howard Lahey, the President-Elect 2464

Safe Driving at Night.....2464

Dr. Chevalier Jackson Receives Distinguished Service Medal..2465

MEDICAL PREPAREDNESS 2466

BUREAU OF LEGAL MEDICINE AND LEGISLATION 2498

(Subject Index on next page)

ORGANIZATION SECTION

Proceedings of the New York Session: Minutes of the House of Delegates 2468

Medical Legislation.....2479

Woman's Auxiliary.....2479

June "Surgical Clinics" from Lahey Clinic

Yes, the June Number of the *Surgical Clinics of North America* is from the Lahey Clinic. It includes an important *Symposium on Spinal Anesthesia* which is based on one of the most extensive experiences in this country with this type of anesthesia. This Symposium covers indications and contraindications in diseases of the central nervous system, in severe hemorrhage, shock, liver and kidney diseases, metabolic diseases, etc. It takes up the patient's needs for preoperative medication and the drugs to employ; gives management of complications, treatment of fall in blood pressure, nausea and vomiting and depressed or arrested respiration; technic of application and dosage of pontocaine-glucose solution; and technic and dosage of nupercaine anesthesia.

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Complete Contents in SAUNDERS ADVERTISEMENT—Page 3

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics; "OS," Organization Section; "SS," Student Section.

A. M. A. Committee on Medical Preparedness 2466
Distinguished Service Medal to Dr. Jackson E-2465
golf tournament 2483
New York Session ....E-2462; (proceedings) OS-2468
President-Elect Lahey E-2464
Abel, John J., request letters from....2483
Abortion, habitual, progesterone and corpus luteum extracts for....ab-2500
sentence Mrs. Mostert 2481
therapeutic, law on, Budapest....2484
Acroparesthesia 2489
Adrenal hormones, cancer from....ab-2500
Airplane flights to relieve deafness....2494
Alcohol, labeling and democracy....C-2489
Alcoholism, chronic, vitamins in....2491
Alvarez, W. C., Jackson Lecture by....2480
American Academy of Ophthalmology and Otolaryngology, home study courses....2483
Physiotherapy Association 2483
Anemia, pernicious, diabetes in....ab-2514
sickle cell, in gallstones in children....C-2488
Arrhenoblastomas, ovarian 2490
Arthritis, chronic, or tuberculosis....2493
pain, roentgen therapy....ab-2510
vitamins plus sanocrysin in....ab-2512
Asbestosis, lung function in....ab-2513
Athlete, high pulse pressure in....2492
Automobiles, safe driving at night....E-2464

Bacteria coli infection, sulfanilamide in..ab-2502
Biliary Tract, regurgitation jaundice....*2427
Blood disorders, x-rays for....*2451
groups in Greenland....ab-2514
immunotransfusions in leukemia....2493
Board Examinations....2495
Bones, lead in *2457
pain, roentgen therapy....ab-2510
Book Notices....2495
Books Received....Adv. page 32
Bowers, Wesley C., appointed....2481
Bradycardia in jaundice....2494
Brain, surgical decompression in lead encephalopathy *2432
Breast cancer, hormone etiology....ab-2500
Bronchus cancer ab-2501
Bureau of Investigation....2488
Bureau of Legal Medicine and Legislation..2498

Calcium, effect on lead retention....*2457
Cancer mortality in U. S....ab-2509
Carbohydrate metabolism and boils....2491
Catgut, surgical, standards for....2483
Cecostomy, instrument for decompressing cecum *2450
Chinese infants, tetany in....ab-2505
Cornea vascularization in ariboflavinosis..*2437
Corner, George T., Squibb award to....2481
Corpus Luteum extract in habitual abortion ab-2500
Correspondence 2488
Council on Foods....2457
Council on Physical Therapy....2457
Cummings Research Fund on heart disease..2480

Deafness, airplane flight for....2494
Deaths 2486
Dementia Praecox, nitrogen gas convulsive therapy ab-2508
Diabetes Mellitus and trauma....ab-2513
complicating pernicious anemia....ab-2514
Dog feces, parasites acquired from....2492
Douche, hot *2449
Drugs, regulations, Buenos Aires....2485
Ductus Arteriosus, patent....ab-2506
Dysgerminoma, ovarian....2490; ab-2500
Dyspepsia in infant, thermobacterium acidophilum for ab-2512

Echinococcus granulosus from dog feces....2492
Embolism, cerebral, heparin for....2493
pulmonary, after injecting varices....C-2489
Endocarditis, bacterial, in lepers....ab-2508
Endocrine-sympathetic system and vitamin economy ab-2513
Estrogens, etiology of breast cancer....ab-2500
production and ovarian tumors....2490
treatment of prepuberal vulvovaginitis..*2446
Eyes reactions in sulfathiazole therapy..ab-2505
serologically positive blood squirted into..2492
symptoms of ariboflavinosis....*2437
Fallopian Tubes, chronic inflammation, hysterosalpingectomy for ab-2504
Feces, urobilinogen in jaundice....*2427
Fetus, thyroid function E-2463
Fibrolipoma, pedunculated, of vulva....*2451
Finger, acroparesthesia 2489
Fistula, vesicoperineal, after resection for cancer 2493
Foreign Letters....2484
Fractures, closed plaster method for....ab-2511
day (annual), Mich....2480
Frigidity in women....2494
Fulton, Joseph S., honored....2482
Fungus extracts, preparing for injection...2492
Furunculosis and carbohydrate metabolism..2491
sulfamethylthiazole for ab-2505
Gallbladder, calculi, in children....C-2488
"Gatch" of hospital bed....2494
Glasses, industrial safety....2489
Goiter, Exophthalmic, surgical results..ab-2512
Goldwater, S. S., president of Associated Hospital Service 2481
Gonorrhea, artificial fever and sulfanilamide for ab-2503
Harvard School of Dental Medicine....2480
Hay Fever, histaminase in....*2448
Health conditions in Argentina....2485
Heart changes in pregnancy....ab-2499
disease, Cummings Research Fund for..2480
infarct (acute miliary)....ab-2502
infarct (muscular), roentgenokymogram in ab-2499
Heparin and cerebral embolism....2493
Histaminase in hay fever....*2448
Hospital bed, "gatch" of....2494
Associated Hospital Service, Dr. Goldwater president 2481
Wesley; Jones Hospital center....2480
Industrial safety glasses....2489
Infants, newborn, spontaneous pneumothorax in ab-2501
Instrument for decompressing cecum during cecostomy *2450
Intestines parasites from animal to man...2492
Intracranial Pressure, increased, in lead encephalopathy *2432
Jackson, Chevalier, Distinguished Service Medal to E-2465
Jackson Lecture by Dr. Alvarez....2480
Jaundice, bradycardia in....2494
regurgitation *2427
Joint pains, roentgen therapy....ab-2510
Kidneys, functional examination....ab-2514
lead retention in....*2457
Kopeloff, Nicolas, appointed....2481
Labeling and democracy....C-2489
Lahey, Frank H., President-Elect....E-2464
Lead encephalopathy, surgical decompression for *2432
minimal toxic dosage....2490
retention, calcium and phosphorus affect..*2457
Legislation, medical OS-2479
Leprosy, bacterial endocarditis in....ab-2508
Leukemia, immunotransfusions in....2493
roentgen therapy *2451
Light sensitivity in ariboflavinosis....*2437
Limb, artificial, material for....2494
Lips, cancer ab-2507
Liver cancer, cirrhosis, etc., regurgitation jaundice *2427
lead retention in....*2457
Lungs abscess ab-2504
cancer, bronchiogenic ab-2501
function in asbestosis....ab-2513
Lymphoblastoma, roentgen therapy....*2451
Lymphogranuloma, Hodgkin's disease...ab-2513
roentgen therapy *2451
Lymphosarcoma, roentgen therapy....*2451
Malaria, combating, Argentina....2485
Malpractice: gas gangrene following treatment of hand injury....Ml-2498
Marriages 2485
Medical Examinations and Licensure....2495
Medical Preparedness....2466
"Medicinal garden" dedicated, Philadelphia..2482
Medicolegal Abstracts....2498
Meetings, Coming Meetings....2498
Nasopharynx, reticulosarcomas ab-2514
Neuralgia, trigeminal, inject procaine..ab-2511
New England Obstetrical and Gynecological Society 2482
News 2480
Nipple, fissured, roentgen irradiation...ab-2512
Nitrogen gas convulsive therapy....ab-2508
Obstetrics, refresher course, Wash....2482
Ophthalmology, home study courses in....2483
Otosclerosis 2494
Ovary, dysgerminoma ab-2500
granulosa cell and theca cell tumors, estrogen production 2490
Pain, relief of, roentgen therapy....ab-2510
Pancreatitis, chronic, with jaundice....*2429
Pericarditis, chronic constrictive 2490
Pharmacology, bibliography of....2483
Phosphorus effect on lead retention....*2457
Pike-Calhoun County Medical Society 40th year 2480
Pituitary, thyrotropic hormone cause of cancer ab-2500
Pneumonia, prevention with sulfapyridine..2494
Pneumothorax, spontaneous, in newborn..ab-2501
Pregnancy, cardiac changes in....ab-2499
Prizes, Ashford Award....2483
Kaiser Medal 2481
McCrae (Thomas) 2482
Squibb Award 2481
Progesterone for habitual abortion....ab-2500
Pseudoparalysis, Parrot's in twins....ab-2512
Psoriasis and diagnosis of syphilis....2493
Pulse pressure, high, in young athlete....2492
Queries and Minor Notes....2489
Rat bite, antirabic treatment in....2494
Rectum cancer, vesicoperineal fistula after..2493
Riboflavin deficiency, ocular signs....*2437
Roentgenokymogram in myocardial infarct ab-2499
Sarcoid, Boeck's, generalized....ab-2503
Serositis, polyserositis....2490
Shock, traumatic 2484
Skin reactions to sulfathiazole....ab-2505
test, preparing fungus extracts for....2492
Smallpox vaccination on back....2494
Society Proceedings....2498
Speech defects, correct at cost....2480
State Board Examinations....2495
Stomach cardiospasm, nitrites for....ab-2501
Students, scientific cooperation 2484
Sulfamethylthiazole for furunculosis....ab-2505
Sulfanilamide treatment of Bacillus coli urinary infections ab-2502
Sulfapyridine to prevent pneumonia....2494
urinary calculi and hematuria after..ab-2506
Surgery, postoperative causes of death..ab-2514
Suture materials, relative value....ab-2510
Syphilis, Parrot's pseudoparalysis in twins ab-2512
serodiagnosis, and psoriasis....2493
serologically positive blood squirted into eye 2492
treatment, 5-day, experiments on....2483
Tapeworm, transmitted by dog?....2492
Tetany in infancy and childhood....ab-2505
Therapy, Conferences on....*2451
Thyroid cartilage, fracture....2493
fetal, function E-2463
Thyroidectomy, metabolism after....ab-2511
Tonics and Sedatives....Adv. page 26
Tonsils, reticulosarcomas in....ab-2514
Trauma and diabetes mellitus....ab-2513
Trichomonas vaginalis, vinegar water douches plus floraquin powder for....ab-2502
Tuberculosis or rheumatoid arthritis....2493
pulmonary, extrapleural pneumothorax converted into oleothorax....ab-2506
pulmonary, thoracoplasty, results....ab-2506
Tularemia ab-2509
Twins, lead encephalopathy....*2432
Parrot's pseudoparalysis in....ab-2512
Typhoid carrier: "Sally" 2481
insurance, accident, in relation to....Ml-2498
Typhus, lice transmit; vaccination....2484
Urinary Tract calculi after sulfapyridine ab-2506
coli infections, sulfanilamide in....ab-2502
Urination, frequency in 4-year old girl....2491
Urine, urobilinogen in jaundice....*2427
Urography, intravenous ab-2514
Uterus cancer (cervical), radium for....ab-2501
Vagina, hot douche....*2449
Varicose Veins injection, pulmonary embolism after C-2489
Vein, circulation after cutting....2491
Vitamin-containing alcoholic beverages..C-2489
in chronic alcoholism 2491
plus sanocrysin in arthritis....ab-2512
sympathetic endocrine system and....ab-2513
Vulva, pedunculated fibrolipoma....*2451
Vulvovaginitis, prepuberal, stilbestrol orally for *2446
Water, chlorination 2492
Williams, J. R., Kaiser Medal to....2481
Woman's Auxiliary....2479
Wood, Francis C., director emeritus....2481

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REGURGITATION JAUNDICE

CLINICAL DIFFERENTIATION OF THE COMMON FORMS, WITH PARTICULAR REFERENCE TO THE DEGREE OF BILIARY OBSTRUCTION

C. J. WATSON, M.D.

MINNEAPOLIS

The recognition of two main varieties of jaundice, namely retention and regurgitation jaundice according to Rich's classification,[1] is of fundamental value. The presence of bilirubin in the urine, likewise the finding of a prompt van den Bergh reaction, at once identifies regurgitation jaundice and separates it from retention jaundice, in which there is simply a hepatocellular inability to dispose of bilirubin provided from the circulating blood. In retention jaundice hepatocellular function may be regarded as sluggish as far as bilirubin excretion is concerned.[2] This sluggishness is more or less relative in hemolytic icterus (one of the principal representatives of the retention type) but must be considered absolute in the rare condition best known as constitutional hepatic dysfunction.[3] In retention jaundice bilirubin alone is held back and accumulated, while in regurgitation jaundice there is the fundamental difference that whole bile returns to the blood. There is much reason to believe that this regurgitation of bile occurs in one of two ways:[4]

1. There is increased intrabiliary pressure due to obstruction of the bile ducts from one cause or another. Rhexis of the small biliary radicles, particularly of the weaker, ampullary portions of the bile capillaries results, and the bile thus gains access to the adjacent lymph spaces.[5]

2. There is increased permeability of the bile capillaries with leakage or diapedesis of bile into the lymph spaces. Again it appears that the ampullary portions of the bile capillaries are the areas most susceptible of injury and hence the chief sites of increased permeability and regurgitation. Injury of this type is undoubtedly caused by a great variety of poisons and toxins. Among others, toluylenediamine, neoarsphenamine, cinchophen and sulfanilamide may be mentioned.

The separation of jaundice into retention and regurgitation types, while thus of fundamental importance, is not adequate for purposes of clinical diagnosis and management of patients. Regurgitation jaundice is characteristic of any severe diffuse liver damage. It is equally characteristic, however, of biliary obstruction due to common duct stone or to cancer. The diverse management of these conditions requires that regurgitation jaundice be subdivided into three main groups: (1) cancerous, (2) calculous and (3) parenchymal types. In my experience, based on the material to be discussed, this subdivision of regurgitation jaundice has been of much value especially from a practical standpoint. It is true that there are certain causes of regurgitation jaundice, such as benign stricture of the common duct, chronic pancreatitis and benign tumor and cysts, which are not readily included in these subdivisions and require individual consideration. The vast majority of cases encountered, however, can be so classified without difficulty. My purpose in this report is to summarize experience with various means of differentiating the three main groups of regurgitation jaundice, with particular reference to urobilinogen excretion. This experience has been gained during the past seven years, in which somewhat more than 300 cases of jaundice of all types have been observed.

MATERIAL AND METHODS

The cases composing the material for the present study were divided as follows:

1. Cancerous jaundice, sixty-seven cases.
   (a) Primary or metastatic cancer in the biliary tract causing obstruction of the common bile duct, the common hepatic duct, or of both right and left hepatic ducts, fifty-eight cases, as follows:
      - Carcinoma of head of pancreas, twenty-three.
      - Carcinoma of common bile duct, eleven.
      - Carcinoma of cystic duct involving common duct, one.
      - Carcinoma of gallbladder extending into common duct, three.
      - Carcinoma metastases in common duct or liver involving main hepatic ducts, nine.
      - Carcinoma having origin in biliary tract, exact primary site not determined, nine.
      - Malignant melanoma metastases to common bile duct (polypoid type), one.
      - Retroperitoneal sarcoma involving common bile duct, one.
   (b) Diffuse or very widespread nodular metastatic carcinoma of the liver, nine cases. (As will be noted, the jaundice in these instances was moderate or slight, and in general the clinical features were often more like those of parenchymal jaundice.)

From the Division of Internal Medicine, University of Minnesota Hospital.

Read in part as a clinical lecture before the meeting in celebration of the fiftieth anniversary of the founding of the University of Minnesota Medical School, Oct. 12, 1939.

1. Rich, A. R.: The Pathogenesis of the Forms of Jaundice, Bull. Johns Hopkins Hosp. **47**: 338 (Dec.) 1930.
2. Watson, C. J.: The Pyrrol Pigments with Particular Reference to Normal and Pathologic Hemoglobin Metabolism, in Downey, Hal: Handbook of Hematology, New York, Paul B. Hoeber, Inc., 1938, vol. 4, chapter 35, p. 2447.
3. Rozendaal, H. M.; Comfort, M. W., and Snell, A. M.: Slight and Latent Jaundice: The Significance of Elevated Concentrations of Bilirubin Giving an Indirect van den Bergh Reaction, J. A. M. A. **104**: 374 (Feb. 2) 1935. Watson.[2]
4. Itoh, Tadasu: Experimentelle Studien über die Pathogenese des Toluylenediaminikterus, Beitr. z. path. Anat. u. z. allg. Path. **86**: 498 (May 29) 1931; Experimentelle Beiträge zur Pathogenese des Phenylhydrazinikterus, ibid. **89**: 513 (July 5) 1932. Hiyeda, K.: Experimentelle Studien über den Ikterus: Ein Beitrag zur Pathogenese des Stauungsikterus, Beitr. z. path. Anat. u. z. allg. Path. **73**: 541, 1925; Experimentelle Studien über die Pathogenese des Ikterus: Ueber die Entstehung des Toluylenediaminikterus, ibid. **78**: 389 (Sept. 5) 1927.
5. The existing evidence favors the view that the regurgitated bile in both process 1 and process 2 passes chiefly by way of the lymphatics and thoracic duct into the blood stream (Bloom, William: The Role of the Lymphatics in the Absorption of Bile Pigment from the Liver in Early Obstructive Jaundice, Bull. Johns Hopkins Hosp. **34**: 316 [Sept.] 1923. Hiyeda[4]).

2. Calculous jaundice, sixty-one cases.
3. Parenchymal jaundice, fifty-seven cases.[6]
   (*a*) Cirrhosis hepatis, twenty-eight cases.
   (*b*) "Catarrhal" jaundice, twenty-three cases.
   (*c*) Acute or subacute atrophy, five cases.

In addition to the cases just classified, there were five instances of benign (postoperative) common duct stricture and two of chronic pancreatitis with jaundice.

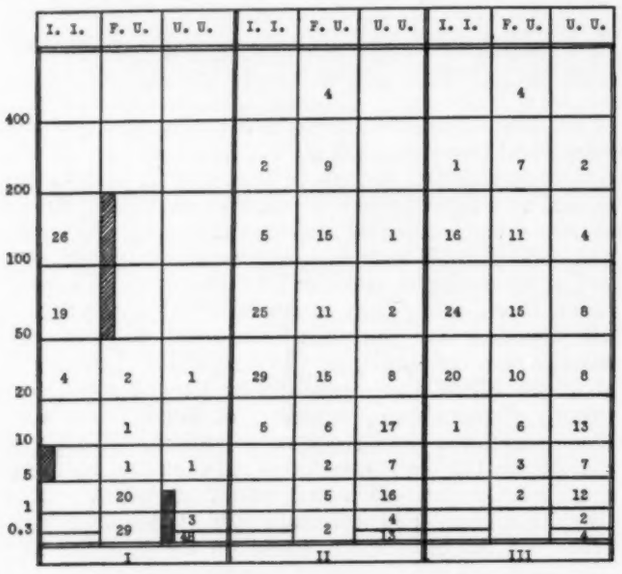

Chart 1.—Icteric index and urobilinogen excretion in feces and urine in the common forms of jaundice, expressed in units (icteric index) or milligrams (urobilinogen). The shading indicates the normal range. Group I: cancerous jaundice, fifty-three cases, operation or autopsy in 60 per cent. Group II: calculous jaundice, sixty-one cases, operation or autopsy in 56 per cent. Group III: parenchymal jaundice, fifty-seven cases, autopsy in 19 per cent.

The diagnoses in these cases were based in part on postmortem or operative evidence and in part on clinical study only. The percentage of cases in which the diagnosis was verified at operation or autopsy is given in the legend for chart 1. The relatively low percentage in group 3 (the parenchymal group) is accounted for by the considerable number of cases of catarrhal jaundice which were included and in which recovery took place. Cases are not included in the present analysis if the diagnosis was made on clinical grounds alone unless the various data and the outcome clearly indicated the nature of the disease.

Particular attention was given throughout this study to the degree of jaundice and to the per diem excretion of urobilinogen in feces and urine. The data for some of the cases in the list were reported in an earlier communication dealing with urobilinogen excretion.[7] For statistical analysis, however, these cases are included in the present report.

The icterus index was determined by colorimetric comparison of the suitably diluted blood serum with a 1:10,000 potassium bichromate solution. The normal range is believed to be from 5 to 10. The per diem excretion of urobilinogen in feces and urine was determined by my modification[8] of Terwen's procedure.[9]

The method was applied to one or more twenty-four hour urine specimens and to one or more four day collections of feces. It is essential that the four day collection include at least 250 Gm. of relatively solid feces. If enemas have been used, the liquid and solid portions are separated and a determination is carried out on each, provided the solid portion weighs at least 250 Gm. If less than this is present in the collection, it is believed either that some has been lost or that constipation has been so marked as to prevent any accurate conclusions. In the presence of diarrhea, determinations are of value with respect only to biliary obstruction, not to the rate of blood destruction. I am aware of the recent paper of Sparkman[10] advocating that the determination be carried out on individual samples of feces or urine and that the values be expressed in terms of milligrams per hundred grams or hundred cubic centimeters. Although this appears to make for simplicity, there are a number of objections to Sparkman's procedure, which will be considered in a separate communication.

RESULTS

It is believed unnecessary to give in detail the exact data for the icterus index and urobilinogen excretion in the various cases of regurgitation jaundice. Sufficient representative data of this type have been provided in a previous communication.[7] For purposes of comparison, all the data thus far obtained have been divided into a number of different groups, each representing a certain range of values. In chart 1 may be seen the range of values for the icterus index and the amount of urobilinogen in the feces and urine in the cases of all three groups of regurgitation jaundice. Data relating to jaundice and urobilinogen excretion were obtained from thirty-three cases of carcinomatous metastases to the liver. These cases have been divided into three groups as shown in chart 2.

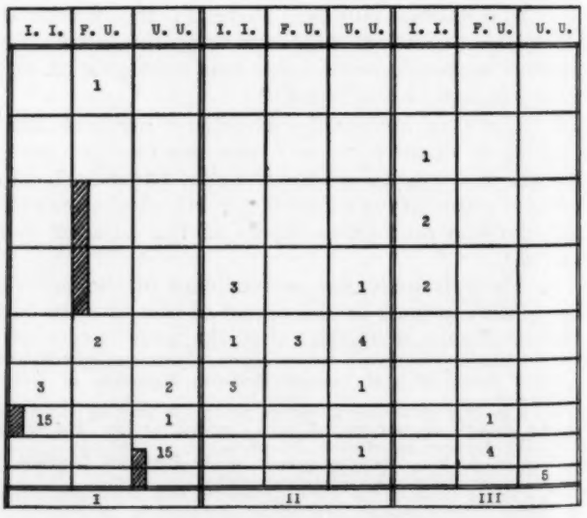

Chart 2.—Icteric index and urobilinogen excretion in feces and urine in thirty-three cases of carcinomatosis of the liver, expressed in units (icteric index) or milligrams (urobilinogen). The shading indicates the normal range. Group I: little or no jaundice, discrete metastases. Group II: mild or moderate jaundice, confluent nodular or diffuse metastases. Group III: marked jaundice, involvement of main hepatic ducts or common bile duct by metastases.

In table 1 are shown the results of the study of five cases of postoperative common duct stricture. The pertinent data in the two cases of chronic pancreatitis are

6. Cases of jaundice due to parenchymal liver damage on the basis of severe infection and those due to sulfanilamide come under this heading but are not included in the present study. (Watson, C. J., and Spink, W. W.: The Effect of Sulfanilamide and Sulfapyridine on Hemoglobin Metabolism and Liver Function, Arch. Int. Med. **65**: 825 [April] 1940).

7. Watson, C. J.: Studies of Urobilinogen: III. The Per Diem Excretion of Urobilinogen in the Common Forms of Jaundice and Disease of Liver, Arch. Int. Med. **59**: 206 (Feb.) 1937.

8. Watson, C. J.: Studies of Urobilinogen: I. An Improved Method for the Quantitative Estimation of Urobilinogen in Feces and Urine, Am. J. Clin. Path. **6**: 458 (Sept.) 1936.

9. Terwen, A. J. L.: Ueber ein neues Verfahren zur quantitative Urobilin Bestimmung im Harn and Stuhl, Deutsches Arch. f. klin. Med. **149**: 72 (Nov.) 1925.

10. Sparkman, Robert: Studies of Urobilinogen: I. A Simple and Rapid Method for Quantitative Determination of Urobilinogen in Stool and in Urine, Arch. Int. Med. **63**: 858 (May) 1939; III. Clinical Value of Determinations of Urobilinogen Content of Single Specimens of Urine and Stool, ibid. **63**: 872 (May) 1939.

given in table 2. These patients were observed with particular reference to urobilinogen excretion in the feces—in other words, with respect to the degree of biliary obstruction—in order to permit comparison with the results obtained in the cancer group.

COMMENT

1. *The Degree of Biliary Obstruction.*—It has often been assumed that the intensity of jaundice is dependent chiefly or solely on the degree of biliary obstruction. (The term biliary obstruction will be used in the broad sense to denote any intrahepatic or extrahepatic interference with bile flow.) As a matter of fact this is only one of several important factors, and it is therefore desirable that the intensity of icterus and the degree of biliary obstruction be considered separately.

TABLE 1.—*Urobilinogen Excretion in Cases of Jaundice Due to Postoperative Stricture of the Common Duct*

Case	Name	Sex	Age, Years	Date	Icteric Index	Fecal Urobilinogen	Urinary Urobilinogen
1	E. S.	♀	42	4/29	43		
				5/ 5	51		
				5/ 7	..	.....	13.5
				5/12	30	375.0	
				5/17	52	345.5	101.5
				5/25	33	325.5	20.4
2	M. L.	♀	48	4/11	63	7.7	Trace
3	J. M.	♀	47	10/21	50	1.2	Trace
4	A. R.	♀	44	4/14	85	6.7	3.9
5	R. O.	♀	28	9/ 6	88	1.3	Trace
				9/11	..	Trace	Trace

In group I (chart 1) it will be noted that in forty-nine of fifty-three cases of cancer involving the biliary tract there was complete biliary obstruction. This is arbitrarily defined as less than 5 mg. of urobilinogen daily in the feces.[11] According to this definition, 92 per cent of the cases in group I showed complete biliary obstruction, and in 55 per cent there was less than 1 mg. of urobilinogen a day in the feces. This is particularly significant when contrasted with the number of such cases in the noncancerous groups II and III (chart 1). In but two instances in these groups, in other words in 1.7 per cent of 118 cases, was there less than 1 mg. of feces urobilinogen a day. Both of the patients had common duct stones. In five additional instances in group II the per diem amount of the feces urobilinogen was less than 5 mg. This constitutes a total of seven, or 11.5 per cent, of the group of sixty-one cases. The exact incidence of cases of complete obstruction is undoubtedly lower than this, however, since many cases of common duct stone with but slight jaundice observed during the same period of time were not investigated as regards per diem urobilinogen excretion. On the other hand, relatively very few cases of biliary tract cancer were omitted from the study. In group III, consisting of fifty-seven cases of parenchymal jaundice, there were but two, or 3.5 per cent, exhibiting less than 5 mg. of feces urobilinogen per day. There were but four cases in the biliary tract cancer group (I) in which more than 5 mg. a day was found. In one of these, in which cancer of the gallbladder extending into the common duct was proved at operation, the average amounts in two successive four day periods were 7.2 and 7.5 mg. This is regarded as too much to represent pigment derived from bile stained mucosa and probably indicates that the biliary obstruction was almost, but not quite, complete. In two of the four cases there were polypoid tumors of the common duct which because of their soft, sessile structure permitted egress of a certain amount of bile. In one of these cases, studied over a considerable period of time, complete obstruction was intermittent and it appeared that the polypoid tumor had behaved as a ball valve. In the fourth case there was much reason to believe that the patient had a very small internal biliary fistula. On x-ray study gas was observed in the biliary tract; it was not possible, however, to demonstrate a fistula by means of a barium sulfate meal or enema. This patient had relatively little icterus, the icterus index being 26. At operation it was determined that there was a large hard carcinoma in the head of the pancreas extending up into the common bile duct. The surgeon did not observe any internal biliary fistula but stated that it might well have been present but unrecognizable. Later biopsy of a cervical lymph node revealed adenocarcinoma.

In chart 1 it will be noted that the twenty-four hour urine urobilinogen was less than 1 mg. in fifty-one of the fifty-three cases. As a matter of fact the amount was less than 0.3 mg. in forty-eight cases, or 90 per cent of the entire group. This is in particular contrast with the results in group II (parenchymal jaundice), in which there were but six cases showing less than 1 mg. a day, of which four, or 7 per cent of the entire group, exhibited less than 0.3 mg. a day. Absence of urobilinogen from the urine in patients with jaundice is not safe evidence that there is complete interference with bile flow. In many cases of calculous jaundice with incomplete biliary obstruction, urobilinogen is either absent from the urine or not appreciably increased. A few cases of parenchymal jaundice have been observed in which the feces urobilinogen ranged from 10 to 20 mg. a day, rarely even higher than this, but with complete absence of urobilinogen from the urine. It could only be assumed in these cases that reabsorption of urobilinogen from the bowel was faulty, or that the liver, even though damaged, was yet capable of disposing of small amounts of urobilinogen which were reabsorbed.

TABLE 2.—*Chronic Pancreatitis with Jaundice*

Patient	Course of Illness	Necropsy
Case 1 ♂ aged 62	Painless jaundice 6 mo.; icteric index 51; fecal urobilinogen 76.6 mg. per day; urinary urobilinogen 5.7-21.4 mg. per day; severe diabetes. Cholecystectomy: cholecystitis, cholelithiasis, choledochitis, chronic pancreatitis; died 1½ yrs. after operation	Severe diffuse chronic suppurative pancreatitis; hypoglycemic cerebral damage
Case 2 ♀ aged 71	Painless jaundice and pruritus 1 mo.; clay colored stools, dark urine; easily palpable nontender distended gallbladder; icteric index 116-162; fecal urobilinogen 9.4-22 mg. a day; no urinary urobilinogen. Cholecystogastrostomy because of hard nodular head of pancreas, believed carcinomatous; death from hemorrhage 1 week after operation	Chronic pancreatitis

Reference has been made in a previous communication [7] to the probable basis for the striking difference in the degree of biliary obstruction usually noted in cancerous as contrasted with calculous or with parenchymal

11. Very small amounts of urobilinogen are undoubtedly derived at times from the bilirubin of bile stained epithelial cells of the colon (Gerhardt, Dietrich: Ueber Urobilin, Ztschr. f. klin. Med. **32**: 303, 1897. Wallace, G. B., and Diamond, J. S.: The Significance of Urobilinogen in the Urine as a Test for Liver Function, Arch. Int. Med. **35**: 698 [June] 1925. McMaster, P. D., and Elman, Robert: Studies on Urobilin Physiology and Pathology, J. Exper. Med. **41**: 513 [April] 1925). The amount which might be derived in this way has never been ascertained with certainty, but it is probably never greater than 5 mg. a day and rarely as much as that.

jaundice. Briefly stated, this is the progressively stenosing or compressing effect of neoplastic disease, differing markedly from the constantly dilating effect of a common duct stone. One might expect certain exceptions in cases of impacted calculi, but so far at least this has not been true in my experience. Cases of gallstones tightly impacted in the ampulla of Vater, without complete biliary obstruction, were described in an earlier report.[7] The two most notable exceptions in the entire series to date were cases in which common duct stones were loose in the duct but were nevertheless associated with complete exclusion of bile from the intestine. The data from one of these cases are shown in table 3.

It will be noted that there was considerable evidence of hepatocellular dysfunction in this case. The galactose test was positive and the stercobilin tolerance[12] was markedly reduced. It seems likely that there was an associated disturbance in the secretion of bile, which together with the calculous obstruction would then readily explain the persistent absence of urobilinogen from the feces during the first four periods. Evidence

Table 3.—*Common Duct Stone with Complete Biliary Obstruction*

B. L., ♂, 34; previous attacks of right upper quadrant pain with nausea and vomiting; mild jaundice 1 year ago; present complaint, painless jaundice of 2 weeks' duration; enlarged, slightly tender liver

Date	Urinary Urobilinogen	Fecal Urobilinogen	Icteric Index	
2/15	.....	.....	54	
2/20	.....	Trace	..	
2/22	0	.....	..	
2/26	Trace	Trace	..	Galactose test 4.4 Gm.
2/27	71.1 (after 100 mg. crystalline stercobilin intravenously)			
2/28	Trace	.....	..	
3/ 1	Trace	Trace	..	
3/ 2	5.2 (after 50 mg. crystalline stercobilin intravenously)			
3/ 3	Trace	.....	..	
3/ 6	Trace	Trace	..	
3/ 7	25.4 (after 50 mg. crystalline stercobilin intravenously)			
3/ 8	Trace	.....	..	
3/10	2.5	19.2	..	
3/14	8.8	84.9	38	
3/18	6.0	217.7	..	
3/24	.....	.....	21	
5/ 4	.....	.....	9	cholecystectomy; choledocholithotomy

of liver dysfunction was also observed in the other of the two exceptions mentioned.

In parenchymal jaundice, urobilinogen seldom disappears from the feces for any consecutive four day period, presumably because a complete suppression of bile flow of this duration is relatively rare. There can be no doubt, however, that this does occur now and then in acute catarrhal jaundice at the height of the disease; furthermore, it is seen in some instances of acute or subacute atrophy of the liver. In one of the five cases of atrophy in the present series, there was complete cessation of bile flow (1.9 mg. of feces urobilinogen a day).

The results in table 1 indicate that traumatic stricture of the common bile duct may or may not be associated with complete biliary obstruction. In one of the cases it is seen that the icterus was of relatively low intensity and the urobilinogen of the feces was actually increased on repeated examinations. The significance of this increase is not clear, but it was probably not due to temporary release of obstruction such as is often observed with common duct stone (as exemplified by the cases in chart 1, in which the feces urobilinogen was above 200 mg. a day). It was considered likely that the increase in this case was due to increased blood destruction related to severe infection and fever (cholangitis).

In the two cases of chronic pancreatitis with jaundice included in this series the biliary obstruction was not complete (table 2). In the second of these cases the diagnosis was rendered particularly difficult because of an easily palpable, distended and nontender gallbladder. A palpable gallbladder of this smooth and nontender variety has been encountered in only one other case in which there was incomplete biliary obstruction. This was the case already referred to, of a carcinoma of the head of the pancreas, in which there was x-ray evidence of an internal biliary fistula. These two instances make it clear that complete biliary obstruction is not essential to the presence of a palpable, distended gallbladder. The possibility of chronic pancreatitis as the cause of jaundice should be considered in the presence of incomplete biliary obstruction and a palpable gallbladder of the type just mentioned. In my experience this type is usually distinguished with a considerable degree of certainty from the palpable gallbladders due to empyema, hydrops, large calculi or primary carcinoma. The first two of the latter varieties are much more vague and are tender as a general rule; muscle spasm is noted in the cases with more active inflammation. The palpable gallbladder due to a large stone in the fundus is very hard and often irregular; the same may be said for primary carcinoma of the gallbladder. It may be emphasized that a nontender, smooth distention of the gallbladder is a sign (Courvoisier's) of cancerous biliary obstruction that is too frequently overlooked; when it exists in association with complete biliary obstruction (less than 5 mg. a day of feces urobilinogen) there can be little doubt that the jaundice is due to cancer. I have encountered no exception to this.

2. *The Intensity of Jaundice.*—In chart 1 it is seen that the jaundice was more often intense in cases of biliary obstruction due to cancer (group I) than in the calculous or parenchymal groups. This is, of course, an observation that has often been made in the past. While in the majority of cases in group I the icterus index was above 100, in a considerable proportion it is seen to be between 50 and 100 and in a few between 20 and 50. It is undoubtedly true that jaundice due to cancer in the biliary tract is likely to be of sufficient degree so that the icterus index is above rather than below 100 and that calculous jaundice, on the contrary, rarely has an icterus index above 100; nevertheless there is enough overlapping so that a sharp separation cannot be made on this basis. The icterus index in the series of cases of parenchymal jaundice (group III in chart 1) exhibits an even wider range, and the intensity of jaundice is of little or no value in distinguishing this group.

In the presence of complete biliary obstruction there are two factors which determine the intensity of jaundice. The first and perhaps the most important of these is the rate and manner of hemoglobin wastage. It has been established definitely by Rous and Drury[13] that loss of blood in dogs having complete biliary obstruction is followed by a decrease in the intensity of icterus, probably resulting from a compensatory throttling of the rate of blood destruction. Conversely, an increase in the rate of blood destruction, such as may be induced by hemolytic agents, is followed by an increase in the

12. Watson, C. J.: Fate of Parenterally Administered Crystalline Urobilin; Urobilin Tolerance Test of Liver Function, Proc. Soc. Exper. Biol. & Med. **34**: 377 (April) 1936.

13. Rous, Peyton, and Drury, D. R.: Jaundice as an Expression of the Physiological Wastage of Corpuscles, J. Exper. Med. **41**: 601 (May) 1925.

intensity of icterus. Reference has been made in an earlier report [7] to human examples of this effect of blood loss in reducing the degree of jaundice, also to the importance of increased hemolysis in some cases of parenchymal jaundice in which the icterus index is very high in spite of the fact that considerable bile is obviously entering the intestine. (The feces urobilinogen may be markedly increased in spite of a high icterus index. This was true in a number of the cases of group III in chart 1, in which the value for the feces urobilinogen was in excess of 200 mg. a day.)

The second of the two factors mentioned is the excretion of bilirubin in the urine. Loss of bilirubin in the urine constantly tends to decrease the intensity of jaundice. If the production of bilirubin diminishes, it is clear that the degree of jaundice will rapidly lessen because of bilirubinuria. So far as can be determined this important factor has never been investigated quantitatively with adequate methods in a series of cases of proved complete biliary obstruction.

Jaundice is absent or slight in the majority of cases of metastatic carcinomatosis of the liver. The data presented in chart 2 cannot be regarded as adequate indication of the true proportion with little or no jaundice, since many cases of carcinomatosis of the liver without jaundice were not included in the present study. On the other hand, an attempt had been made to include all cases [14] with definite jaundice, and relatively very few have been omitted. From the present study it is evident that cases of hepatic carcinomatosis may be divided into three groups (chart 2). This division, of course, is not absolute, and it is obvious that any one case might be classified with any one of the three groups at various periods of the disease. In most of the present cases, however, the classification remained the same throughout the period of observation. The type of case in group II is that which is most easily confused with parenchymal jaundice, particularly with cirrhosis of the liver, principally because of mild jaundice, urobilinogenuria and frequently ascites. The very diffuse type of carcinomatosis sometimes encountered in the livers in these cases may even be mistaken at necropsy for cirrhosis of the liver (until the correct diagnosis is established microscopically). Biliary obstruction was but partial in the cases of group II. The feces urobilinogen was not determined except in cases with considerable icterus. In the cases of group III in chart 2, however, complete biliary obstruction occurred because of metastatic lesions involving the main hepatic ducts. These five cases are also included with the fifty-three cases of biliary tract cancer in chart 1.

3. *Urobilinogenuria and Associated Evidence of Diffuse Parenchymal Liver Damage.*—As already noted, complete biliary obstruction (group I, chart 1) is characterized by an absence of urobilinogen in the urine, although this feature alone is not sufficient evidence that the obstruction is complete.

The present data indicate that urobilinogenuria present after the first few days of jaundice is strong evidence against the presence of cancer in the extrahepatic biliary tract. No case has been encountered in which it appeared that urobilinogen was being formed and absorbed from the biliary tract itself, as noted in dogs by McMaster and Elman.[15] (Clinical proof of this requires urobilinogenuria in the presence of complete biliary obstruction.)

In the calculous and parenchymal groups of jaundice (chart 1) marked urobilinogenuria was often observed. In general, the amounts were not large in cases of common duct stone unless there was associated acute biliary tract infection such as cholecystitis, empyema of the gallbladder or cholangitis, or unless the biliary obstruction was of more than several weeks' duration, resulting in marked enlargement of the liver (biliary or obstructive cirrhosis in many instances). It must be emphasized, however, that while urobilinogenuria was much more often observed in marked degree in the parenchymal group, too much overlapping is noted to permit differentiation on this basis alone. In the distinction of cases belonging in the parenchymal group, several additional clinical features which are often associated with urobilinogenuria may be emphasized.

1. The amine odor, or foetor hepaticus.[16] This has been noted in marked degree only in acute or subacute atrophy of the liver. It has been noted in much fainter concentration in several cases of protracted severe jaundice of catarrhal type in which the jaundice eventually disappeared, also in cases of chronic hepatic cirrhosis with jaundice. Recently the foetor hepaticus has been observed for one or two days in very ill patients with transient jaundice appearing after administration of sulfanilamide. These individuals recovered. The amine odor in mild degree is therefore not always a fatal prognostic sign.

2. Spider nevi.[16] These are regarded as very suggestive of hepatic cirrhosis. They are readily distinguished from ordinary telangiectases, dilated venules or varices. They may be small and easily overlooked, but even the small ones exhibit the characteristic central angioma, with a varying number of very fine vessels radiating outward. Pulsation of larger angiomas of this type has been observed.[17] In accordance with Eppinger's extensive experience,[16] I have not observed spider nevi except in the regions drained by the superior vena cava. The reason for this is as yet unknown. It should be emphasized that these angiomas often appear within the course of a few days, at times even in small groups. They may be noted on the back of the neck or shoulders, and even on the arms and hands. In my experience, typical multiple spider nevi have not been observed except when there was distinct evidence of liver disease.

3. Physical signs of a small liver. Failure to palpate the liver together with very distinct reduction in liver dulness in the midclavicular line is important evidence that the jaundice is of parenchymal type, either cirrhosis or atrophy.

4. Palpable spleen. While this occurs much more frequently in cases of the parenchymal group, it has been noted in several patients with long standing calculous jaundice (with obstructive cirrhosis) and in occasional cases of carcinomatosis. Hodgkin's disease with jaundice is another possibility to be considered. I have studied two cases, not included among the foregoing, in which there were enlarged spleen and liver, deep jaundice and complete biliary obstruction, explained at necropsy by a tight collar of lymph nodes about the common duct; microscopic examination in both instances showed Hodgkin's disease.

14. In the various services of the University of Minnesota Hospitals.

15. McMaster, P. D., and Elman, Robert: Urobilin Physiology and Pathology, Ann. Int. Med. **1**: 68 (Aug.) 1927.

16. Eppinger, Hans: Die Leberkrankheiten, Berlin, Julius Springer, 1937.

17. Williams, D. H., and Snell, A. M.: Pulsating Angioma (Generalized Telangiectasia) of the Skin Associated with Hepatic Disease, Arch. Int. Med. **62**: 872 (Nov.) 1938.

5. Ascites. This occurs commonly in both parenchymal and cancerous jaundice. In the latter the fluid usually has a specific gravity above 1.014 and is often found to contain mucin, the presence of which is of considerable diagnostic aid. Ascites has been encountered in three cases of long-standing calculous jaundice with secondary obstructive cirrhosis. This is mentioned simply because it indicates that the presence of ascites does not wholly exclude a common duct stone as the underlying, primary cause of jaundice.

SUMMARY AND CONCLUSIONS

1. Regurgitation jaundice may be divided from a clinical standpoint into three main groups: (*a*) cancerous, (*b*) calculous and (*c*) parenchymal.

2. The common variety of jaundice due to cancer is that in which the extrahepatic biliary tract is involved either primarily or by metastatic tumor. In 92 per cent of the cases in this group there was complete biliary obstruction (less than 5 mg. of feces urobilinogen daily). Of the combined cases of the calculous and parenchymal groups, 7.6 per cent exhibited complete biliary obstruction. It may be emphasized that in 55 per cent of the cases of biliary tract cancer there was less than 1.0 mg. a day in contrast with but 1.7 per cent in the combined calculous and parenchymal groups.

3. The icterus index is usually higher in cancerous than in calculous jaundice, but there is sufficient overlapping to prevent reliability of any arbitrary dividing level in diagnosis. A wide range of the icterus index was noted in the cases of the parenchymal group. The intensity of icterus is dependent in part on the degree of biliary obstruction but may vary widely even if the latter is complete. This variation depends on the rate of blood destruction. Hemorrhage causes a decreased rate, with consequent reduction in intensity of jaundice.

4. Carcinomatosis of the liver may be divided into three groups with respect to icterus: (*a*) Discrete metastases with much relatively normal liver parenchyma and no involvement of the main hepatic ducts; there is little or no jaundice or urobilinogenuria. (*b*) Diffuse or confluent nodular metastases, with moderate jaundice, and urobilinogenuria; the clinical picture may simulate cirrhosis of the liver. (*c*) Metastases involving the main hepatic ducts, with deep jaundice and complete biliary obstruction; these cases are included with those of biliary tract cancer.

5. In 90 per cent of cases of biliary tract cancer there was less than 0.3 mg. of urobilinogen a day, while but 7 per cent of the combined calculous and parenchymal groups were in this range. Increases in the twenty-four hour urine urobilinogen were most frequent and marked in the parenchymal group but were often noted in calculous jaundice also. A number of other clinical features are of value in distinguishing these two groups of cases.

6. Jaundice due to traumatic common duct stricture may or may not be associated with complete biliary obstruction.

7. In two cases of chronic pancreatitis with jaundice, biliary obstruction was not complete.

8. The palpation of a nontender, smoothly distended gallbladder is strong evidence that jaundice is due to cancer. This may be regarded as certain if there is an associated complete biliary obstruction. The same type of palpable gallbladder is encountered rarely in the presence of incomplete biliary obstruction due to chronic pancreatitis.

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THE SURGICAL TREATMENT OF LEAD ENCEPHALOPATHY

WITH PARTICULAR REFERENCE TO THE PREVENTION OF SEQUELAE

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Lead encephalopathy as an entity was first described by Tanquerel des Planches,[1] although other forms of lead poisoning have been described by many other men whose names are well known in medical literature.[2] Since the work of Tanquerel des Planches many French clinicians [3] have contributed to our knowledge of lead poisoning. The disease with its many forms and sequelae has also been recognized and studied in Australia,[4] and Kato [5] has recently summarized the extensive Japanese literature on the subject.

The sequelae of lead encephalopathy have included paralysis, tremor, hemiplegia,[6] hallucination, paraplegias, amblyopia, hydrocephalus, convulsion, mental retardation, melancholia and delirium. These residuums have been observed predominantly in adults, though a few authors have considered the situation as it relates to children. In American pediatric literature Thomas and Blackfan [7] were the first to point out that lead encephalopathy, while it did occur in adults, was much more frequent in children. Others [8] have reported cases which have substantiated this premise. According to all reports the mortality in cases of lead encephalopathy in children has been very high. Blackfan[4] published reports of four children who had convulsions, of whom three died and one recovered. This one was apparently well two years later. Strong [9] had one patient who ate paint from the bed; meningeal signs with convulsions developed, and even though repeated lumbar punctures were performed the child died twelve days after the onset of symptoms. Aub and his associates [2] report a mortality of from 25 to 75 per cent. Of four patients observed by Park, Jackson and Kajdi,[10] all had convulsions. Two died and the two that survived showed marked mental retardation. However, both of those who recovered had normal spinal fluid pressure during

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2. Aub, J. C.; Fairhall, L. F.; Minot, Ann S., and Reznikoff, Paul: Lead Poisoning, Medicine **4**: 1-250 (Feb.-May) 1925.

3. Weller, C. V., and Christensen, Aileen D.: Cerebrospinal Fluid in Lead Poisoning, Arch. Neurol. & Psychiat. **14**: 327-345 (Sept.) 1925.

4. Blackfan, K. D.: Lead Poisoning in Children, with Especial Reference to Lead as a Cause of Convulsion, Am. J. M. Sc. **153**: 877-887 (June) 1917.

5. Kato, Katsuji: Lead Meningitis in Infants: Résumé of Japanese Contributions on the Diagnosis of Lead Poisoning in Nurslings, Am. J. Dis. Child. **44**: 569-591 (Sept.) 1932.

6. Gowers, W. R.: Diseases of the Nervous System, ed. 2, Philadelphia, P. Blakiston's Son & Co., 1900.

7. Thomas, H. M., and Blackfan, K. D.: Recurrent Meningitis, Due to Lead, in a Child of Five Years, Am. J. Dis. Child. **8**: 377-380 (Nov.) 1914.

8. Ford, F. C.: Diseases of the Nervous System in Infancy, Childhood and Adolescence, Springfield, Ill., Charles C. Thomas, Publisher, 1937. Thomas, H.: A Case of Generalized Lead Paralysis, with a Review of the Cases of Lead Palsy Seen in the Hospital, Bull. Johns Hopkins Hosp. **15**: 209-212, 1904. Fisher, E. D.: Lead Poisoning, with Special References to the Spinal Cord and Peripheral Nerve Lesions, Am. J. M. Sc. **104**: 51-54, 1892. Ruddock, J. C.: Lead Poisoning in Children, with Special Reference to Pica, J. A. M. A. **82**: 1682-1684 (May 24) 1924. Holt, L. E., Jr.: Lead Poisoning in Infancy, Am. J. Dis. Child. **25**: 229-233 (March) 1923. Laslett, E. E., and Warrington, W. B.: The Morbid Anatomy of a Case of Lead Paralysis, Brain **21**: 224-231, 1898.

9. Strong, R. A.: Meningitis Caused by Lead Poisoning, in a Child of Nineteen Months, Arch. Pediat. **37**: 532-537 (Sept.) 1920.

10. Park, E. A.; Jackson, Deborah, and Kajdi, Laslo: Shadows Produced by Lead in the X-Ray Pictures of the Growing Skeleton, Am. J. Dis. Child. **41**: 485-499 (March) 1931.

the acute phase of the disease. In McKhann's [11] series of forty children with lead poisoning, twenty-four had symptoms of encephalopathy. Of these forty children nine died, and five of those who survived retained residuals. In another series McKhann and Vogt [12] reported forty-five cases of lead encephalopathy. Eleven patients died and twelve had permanent sequelae. Of these twelve four had convulsions and four had cerebral atrophy. Tremor was noted in two, six were mentally retarded, two had muscular weakness, three were blind and one had a speech defect. In 1926 McKhann [13] reported the case of a child 23 months old who had lead encephalopathy and in whom a paresis of the left arm and leg persisted even after two years. Williams and his associates [14] report forty cases in children in which lead poisoning resulted from using old storage batteries as fuel. Five patients had encephalopathy and there were no deaths. They say nothing of any sequelae developing.

It is obvious from a review of the literature that the reports concerning the sequelae of lead encephalopathy in children are few. Practically all of the older literature deals with adults, in whom the clinical picture is usually quite different. It is only in the last three decades that lead encephalopathy has been recognized as a not uncommon disease of childhood, which in the acute stage typically results in convulsions and in signs of meningeal irritation and of increased intracranial pressure. Even from the rather scant literature available it is, however, obvious that in general the mortality in this condition is high, varying from 25 to 75 per cent, and that the disease is particularly apt to prove fatal in children in whom convulsions and/or the signs of increased intracranial pressure develop. It is also apparent that complete and uncomplicated recovery from the disease is not as frequent as might be desired. Many of these children survive the acute episode only to be burdened with convulsions, mental retardation, blindness, paralysis or other manifestations of permanent injury to the nervous system for the rest of their lives.

Accordingly, we propose to review our few cases of lead encephalopathy in children in which the acute phase was promptly relieved by surgical decompression as reported by Bucy and Buchanan [15] several years ago. We wished to determine whether this limited series might give us any clue as to whether surgical decompression is as successful in preventing the development of sequelae as it is in relieving the acute manifestations of this extraordinarily malignant and crippling disease of childhood.

It was McKhann [11] who first proposed a decompression for the relief of the increased intracranial pressure which so commonly occurs with lead encephalopathy in children. Roentgenograms of the skull had been taken only a few days apart in one of his cases of lead encephalopathy and revealed a separation of the cranial sutures. This "spontaneous decompression" resulted in a striking clinical improvement. As separation of the sutures is often inadequate he was led to advocate a surgical decompression in such cases. However, it would appear from his published works that this suggestion was never adopted in any of his cases. Bucy and Buchanan,[15] who first performed such a decompression as a result of an error in diagnosis, demonstrated the value of this procedure and advocated its adoption in suitable cases. In their cases the intracranial pressure was relieved and a rapid recovery ensued. These cases have now been followed, one for five years and the other for seven years after operation, and another case not previously reported at that time has been followed for three years after operation.

The case histories previously reported will be cited only briefly. A more detailed report can be obtained from the article by Bucy and Buchanan.[15]

REPORT OF CASES

CASE 1.—*History.*—Roy C., aged 2 years, was referred to the University of Chicago Clinics, where he was admitted Oct. 6, 1934, by Dr. Joseph Brennemann of the Children's Memorial Hospital. The history as given by the mother was that the patient and Ray, his brother, a fraternal twin, both ate painted plaster from the wall three months before admission. She gave them both castor oil, which Roy vomited but the brother retained. The brother immediately recovered but Roy soon became ill. From the onset until admission he had spells of vomiting of several days' duration between which he seemed to regain strength. The bowels were loose at times during this period. Six weeks before admission he had a generalized tonic spasm lasting two minutes and on October 4 a clonic convulsion lasting one and a half hours.

TABLE 1 *(case 1).—Comparative Physical Measurements of the Patient, Roy, and His Uninvolved Twin Brother, Ray*

	Head Circumference, Cm.		Weight, Kg.		Height, Cm.	
	Roy	Ray	Roy	Ray	Roy	Ray
Oct. 4, 1932	Birth	....	3.33	2.73	.....	.....
Oct. 11, 1934	Operation					
Feb. 20, 1935	51	....	....	....	.....	.....
April 3, 1935	51	....	....	....	.....	.....
Jan. 8, 1936	51	50	19.0	14.6	96.52	89.8
Jan. 27, 1937	52.3	50.8	....	....	.....	.....
Jan. 5, 1938	53.0	51.0	22.2	18.9	109.2	104.1
Aug. 2, 1939	53.4	51.2	23.4	19.7	118.1	111.7

Examination.—The head was enlarged and there was dilatation of the superficial veins of the scalp. There was a cracked pot sound on percussion. Ophthalmoscopic examination showed papilledema of from 2 to 2½ diopters. The pupils were equally dilated and reacted slowly to light through a small range. Nystagmus was absent and conjugate movements of the eyes were not restricted. The remaining cranial nerves were normal. The abdominal reflexes were absent. Sensation and muscular strength and coordination were intact. On walking and sitting the child showed some difficulty in maintaining his balance. There was glycosuria with a fasting blood sugar value of 138 mg. per hundred cubic centimeters, but the dextrose tolerance curve was normal. Roentgenograms of the skull showed a generalized diastasis of all sutures.

Diagnosis and Operation.—Since the history of eating paint was not obtained until over a month after admission, a diagnosis of malignant tumor of the midline of the cerebellum was made. A suboccipital craniectomy was performed. No tumor was found.

Postoperative Course.—October 17, x-ray films of the wrist showed a definite line of increased density at the distal end of the radius and ulna.[16] Examination of the blood for stippling failed on all occasions to reveal any cells so affected. Lead was demonstrated in the spinal fluid, blood, urine and feces.

The patient's condition gradually improved, the papilledema subsided and the cerebrospinal fluid pressure soon returned to

11. McKhann, C. F.: Lead Poisoning in Children: The Cerebral Manifestations, Arch. Neurol. & Psychiat. **27:** 294-304 (Feb.) 1932.
12. McKhann, C. F., and Vogt, E. C.: Lead Poisoning in Children, J. A. M. A. **101:** 1131-1135 (Oct. 7) 1933.
13. McKhann, C. F.: Lead Poisoning in Children: Therapy, Am. J. Dis. Child. **32:** 386-392 (Sept.) 1926.
14. Williams, Huntington; Schulze, W. H.; Rothechild, H. B.; Brown, A. S., and Smith, F. R., Jr.: Lead Poisoning from the Burning of Battery Casings, J. A. M. A. **100:** 1485-1489 (May 13) 1933.
15. Bucy, P. C., and Buchanan, D. N.: The Simulation of Intracranial Tumor by Lead Encephalopathy in Children, with Remarks Concerning Surgical Treatment of Latter, J. A. M. A. **105:** 244-250 (July 27) 1935.
16. Caffey, John: Clinical and Experimental Lead Poisoning: Some Roentgenologic and Anatomic Changes in Growing Bone, Radiology **17:** 957-983 (Nov.) 1931. Vogt, E. C.: Roentgenologic Diagnosis of Lead Poisoning in Infants and Children, J. A. M. A. **98:** 125-129 (Jan. 9) 1932. Park, Jackson and Kajdi.[10]

normal. Since his discharge from the hospital he has been seen from time to time in the outpatient clinic with no more complaints and he has continued in excellent health. His optic disks are possibly a little paler than those of his twin brother. The visual acuity, however, has remained excellent.

The lines of increased density in the metaphyses of the long bones visible with the x-rays and diagnostic of lead poisoning in this case have been followed during the more than five years since the operation. With epiphysial growth these lines have gradually moved farther and farther away from the epiphyses and at the same time have decreased in size until they are no longer visible in the x-ray films made in August 1939.

TABLE 2.—*Intelligence Tests in Case 1*

	Roy (Patient)			Ray		
Date	Chronological Age	Mental Age	I. Q.	Chronological Age	Mental Age	I. Q.
1/ 7/38	5 yr. 3 mo.	4 yr. 2 mo.	79*	5 yr. 3 mo.	5 yr. 2 mo.	98*
8/ 9/39	6 yr. 10 mo.	5 yr. 7 mo.	82*	6 yr. 10 mo.	7 yr. 3 mo.	106*
8/17/39	6 yr. 10 mo.	6 yr. 0 mo.	88†	6 yr. 10 mo.	8 yr. 0 mo.	117†

* Revised Stanford-Binet tests.
† Arthur performance scale.

Physically there has been a striking difference in the development of these fraternal (not identical) twins. Roy, the patient, has grown, as the accompanying chronological tabulation shows (table 1), to be much larger and stronger than his twin brother, Ray. He is the more aggressive of the two and invariably is the victor in any scuffle. However, it is noteworthy that even at birth Roy was considerably larger than Ray. Furthermore, the mother is certain that Roy was always the larger of the two boys, even prior to the operation. Unfortunately no records of their height or weight other than those recorded in table 1 have been kept.

Roy's mental development, however, has not kept pace with his physical growth and there is no question that he is retarded as compared with his brother, although he is by no means a feebleminded child. He does not do as well in school, and his mother has often remarked that he does not comprehend as quickly as his brother. The intelligence quotients of both brothers have been obtained. The results are shown in table 2.

Psychometric studies on these twins have been interesting. On Jan. 7, 1938, these tests were given to the two boys separately. On the revised Stanford-Binet test Roy had a rating of 79 in contrast to Ray's 98. These tests were repeated Aug. 9, 1939, under the same conditions. Roy had a rating of 82, his twin brother of 106. August 17 by the Arthur performance test Roy obtained a rating of 88, his twin of 117.

In spite of the great difference in the twins' final results each time and on both forms, the same tendencies were noted originally and have continued to exist. On the whole they passed and failed the same general type of test, although Ray's initial level was higher and the range greater. Roy's performance was characterized by irregular scatter, marked perseveration, slow reactions, poor initiative and inability to note details. His speech has continued to develop more slowly than Ray's.

It would appear that lead encephalopathy has resulted in definite mental retardation in this case. The differences between the two boys of 19 and 24 points on the Stanford-Binet tests and of 29 on the Arthur performance tests are greater than one would expect in fraternal twins. Newman, Freeman and Holzinger in their book "Twins" [17] give the range of differences for fraternal twins raised in the same environment as 1 to 40. According to these authors 32.7 per cent of such twins show differences of from 0 to 5 and 46.2 per cent of from 5 to 15 (table 3). Thus 78.9 per cent show differences of less than 15 points. It is obvious, therefore, that the difference ranging from 19 to 29 points present in these twins is far greater than one would expect and is of a degree found in but few instances by Newman, Freeman and Holzinger (table 3). The disease has, however, resulted in no other permanent neurologic disorder and has obviously not retarded the boy's physical development, as Roy has continued to be taller, heavier and stronger than his twin brother, Ray.

The second case is also one of those previously reported by Bucy and Buchanan.[15] It has not been possible to follow their third case.

CASE 2.—E. S., a girl aged 5 years, was referred to the University of Chicago Clinics by Dr. Joseph Brennemann, of Chicago. She was admitted on July 17, 1931, with the story that for the previous three weeks she had complained of headache and had been vomiting. The left eye had been turned in for one week. At first she vomited only once or twice a day, but for the week and a half before admission the vomiting had been more severe and she was unable to retain anything she ate. No nausea accompanied the vomiting attacks. The headaches were persistent for the three weeks period prior to admission, were not localized to any part of the head, but were generalized and varied in intensity from time to time. Four days prior to admission she complained of a stiff neck.

On examination there was a cracked pot sound on percussion of the skull. There were bilateral choking of the optic disks, paralysis of the left external rectus muscle and paresis of the right. There was no nystagmus. The pupils were regular and both reacted normally to light. Some decomposition of movements was present on the finger to nose test on the left side, with a general slowing of rapid alternating movements in both upper extremities. The deep tendon reflexes were hypo-active, and occasionally Babinski's sign could be elicited on both sides. She walked with her feet spread wide apart and with a staggering gait.

Roentgenograms of the skull revealed slight diastasis of the sutures and digital markings on the inner table of the skull, all pointing to increased intracranial tension.

Examination of the blood and urine revealed nothing abnormal.

A diagnosis of a midline cerebellar tumor was made, and July 23 a suboccipital craniectomy and cerebellar exploration were performed. No tumor was found. The unsatisfactory diagnosis of "acute internal hydrocephalus of unknown origin" was made postoperatively.

TABLE 3.—*Range of Differences in Intelligence Quotient of Fraternal Twins* *

I. Q. Difference	Number of Cases	Percentage of Total Cases Studied
0 to 5	17	32.7
5 to 10	12	23.1
10 to 15	12	23.1
15 to 20	7	13.5
20 to 25	2	2.8
25 to 30	1	1.9
30 to 35	0	...
35 to 40	1	1.9
Total cases	52	100.0

* This table shows the frequency of the various differences in intelligence quotient (I. Q.) in fifty-two pairs of fraternal (not identical) twins as determined by Newman, Freeman and Holzinger.[17]

The patient made a rapid uneventful recovery and was discharged from the hospital. Results of the examination at that time were normal except for slight pallor of both optic disks and paresis of the external rectus muscle of the left eye, which persisted for several weeks before the condition returned to normal.

After our experience with patient 1 in 1934, this patient was asked to return for reinvestigation because of the similarity between the two. On x-ray films of the wrist and knee taken Oct. 26, 1934, lines of increased density about 1 mm. wide and lying in the shafts of the long bones some little distance above the epiphyses were seen. On reviewing the films of the skull taken at the time of the acute illness in July 1931, it was found that a photograph of one shoulder was present on some of the films. A line of increased density was plainly

17. Newman, H. H.; Freeman, F. N., and Holzinger, K. J.: Twins: A Study of Heredity and Environment, Chicago, University of Chicago Press, 1937.

visible in the metaphysis of the humerus and had been overlooked at the original examination. Similar films made on Jan. 11, 1932, revealed the line slightly removed from the epiphysis.

Following her discharge from the hospital she was seen at intervals in the outpatient department. Except for an otitis media she continued to be well. She was last seen March 13, 1938, almost seven years after the acute lead encephalopathy and the decompression. She was then 12 years old. She was a bright alert child who had done well in her school work. General physical and neurologic examination gave no evidence that the disease had resulted in any permanent impairment. On the revised Stanford-Binet test an intelligence quotient of 96 was obtained. Her performance was characterized by an inability to recognize units as wholes and a tendency rather to be engrossed with detail; poor visual perception, and inconsistent performance in that she failed a simpler form of a given task yet would pass a more difficult version later on. The scatter was irregular.

Although, as Bucy and Buchanan [15] pointed out, the diagnosis in this instance rests heavily on the roentgenographic observations as there was no direct demonstration of the presence of lead in the blood or cerebrospinal fluid or in any of the excreta, there can be little doubt of the accuracy of the diagnosis. The positive x-ray evidence as well as the typical acute development of the signs of increased intracranial pressure and the stiffness of the neck are all typical of this disease.

It is obvious that with the prompt relief of the increased intracranial tension by the surgical decompression she probably was spared the development of any of the neurologic or mental sequelae which so commonly appear in the wake of this disease.

At the time of their original report in 1935 Bucy and Buchanan [15] remarked that, although through diagnostic error a suboccipital decompression had been made in their cases, they thought it not unlikely that the simpler subtemporal decompression would prove equally effective. We were soon presented with an opportunity to check this hypothesis:

CASE 3.—M. T., a girl aged 23½ months, was admitted to the University of Chicago Clinics Aug. 17, 1936, with a history of vomiting three or four times a week since the age of 11 months. This vomiting was associated with no other symptom, and usually occurred from right after to about one hour after meals. The severity of the vomiting was rather constant until about two weeks before admission, when it became worse, and for the week prior to admission she had vomited almost everything eaten. The vomiting was usually projectile in type. There was no other history of any gastrointestinal disturbances.

The child was fairly well developed and well nourished and was not particularly dehydrated. There was a suggestive Macewen's sign. The optic disks were swollen bilaterally 1 or 2 diopters. She walked with her feet wide apart, but neurologic and physical examinations were otherwise negative.

Roentgenograms of the wrists Aug. 22, 1936, revealed lines of increased density at the ends of the shafts of both bones of the forearm and the roentgenograms of the skull showed slight but definite separation of sutures. On examination of the blood, basophilic stippling of the erythrocytes was demonstrated. Glycosuria was present but the dextrose tolerance curve was normal (as in case 1). The red blood cells numbered 3,800,000 and the hemoglobin was 60 per cent. Further questioning of the parents elicited the information that the patient put many objects into her mouth and often chewed at her painted crib.

A diagnosis of lead encephalopathy was made and a right subtemporal decompression was performed on August 25. A needle was inserted into the lateral ventricle and a considerable quantity of clear colorless cerebrospinal fluid under considerable pressure was obtained. The defect in the temporal bone was enlarged, and a stellate incision was made in the dura mater.

The postoperative course was uneventful and she was discharged on the eighth postoperative day.

She was not seen again until Aug. 3, 1939, three years after the operation, at which time she was almost 5 years old. There were no complaints. The physical and neurologic examinations revealed only the site of the temporal decompression, which was flat and soft, and a questionable slight bilateral optic atrophy. The disk margins, however, were normal. She appeared perfectly normal in every other respect.

Roentgenograms of the skull showed the decompression and those of the long bones revealed the lead lines, which were diminished in thickness and density and were at some distance from the epiphyses.

When the patient was 4 years and 11 months old she was given the new Kuhlmann individual test. A mental age of 5 years with an intelligence quotient of 101 was obtained. Her speech and language development was superior to her ability to deal with numbers and her ability to control her motor coordination. She was a well poised and alert child.

Although the illness of this child was of a much more chronic nature than of the other two, it was also much less severe. Therefore, although it would appear that a subtemporal decompression is just as beneficial as a suboccipital one in relieving the acute manifestations of the disease and in preventing the development of sequelae, this cannot be definitely determined until this type of decompression has been tested in more severe cases.

During the same period of time two of our patients have died from this disease. Death of one patient may have been the result of an error in judgment as to the anesthetic agent used and we think it possible that he might have been saved. In the other case the disease was so severe and the child's condition so precarious at the time she was first seen that it is doubted whether any measures at that late date could have proved effective.

CASE 4.[18]—*Preoperative Course.*—T. M., a boy aged 21 months, was admitted to the University of Chicago Clinics Aug. 9, 1935. The parents stated that he had been well until one month previously, when he began to refuse food. He soon began to vomit. During this illness he had become constipated. He gradually lost weight and became disinterested and listless. A few days before admission he began to stagger when walking.

On admission the child appeared pale and listless. The pharynx was injected and the cervical lymph glands and spleen were enlarged and palpable. An ophthalmoscopic examination was apparently not made at that time.

The child became very restless and irritable. August 11 he had two generalized convulsions. The following morning at 4:30 he had another convulsion. The possibility of lead intoxication occurred to the attending physician, who then made careful inquiry concerning what the child had eaten. It developed that prior to the onset of the present illness the child had eaten some painted plaster and putty prepared with lead. Examination of the red blood cells revealed many stippled cells, and roentgenograms of the long bones revealed definite bands of increased density ("lead lines") in all the metaphyses. A lumbar puncture was made. The initial pressure was 350 mm. of fluid. The fluid was clear and colorless and contained 26 cells (23 polymorphonuclear leukocytes and 3 lymphocytes) and 62 mg. of protein.

We first saw the patient on the morning of August 12. At that time he was comatose, the temperature was 39.5 C. (103.1 F.), the pulse and respirations were irregular and he was having frequent convulsions. Percussion of the skull gave rise to a cracked pot sound; there were beginning papilledema in both eyes, moderate rigidity of the neck and extensor rigidity of all four extremities.

18. This case has previously been briefly referred to (case 2) by Gant, V. A.: Lead Poisoning: Exposures to Lead; Its Absorption, Transportation, Distribution and Deposition in the Tissues; Photometric Dithizone Method as Accurate Means of Determination; "Normal" Lead in Tissues and Urine, "Normal" Value in Blood, Indust. Med. 7: 608-622 (Oct.) 1938; Lead Poisoning: Fifty-One Fatal Cases of Suspected Lead Poisoning and Forty-Six of Nonfatal Lead Poisoning: Diagnosis; Treatment; Summary, ibid. 7: 679-699 (Nov.) 1938.

Diagnosis.—In view of these observations, the history of the ingestion of painted plaster and putty, the basophilic stippling of the erythrocytes and the lines of increased density in the roentgenograms, we concurred in the diagnosis of lead encephalopathy and advised an immediate decompression.

Operation.—Because of his poor condition it was thought best to perform the operation with local anesthesia. The subtemporal decompression was begun at 3:35 p. m. August 12. After the opening in the bone had been made and the dura mater incised, with relief of the increased intracranial pressure, a generalized convulsion suddenly developed and the patient ceased breathing. In spite of the administration of artificial respiration, stimulants and other remedies, spontaneous respiration was never resumed and cardiac activity ceased some fifteen to twenty minutes later.

Necropsy.—Microscopic examination of the brain revealed a moderate increase in the connective tissue of the leptomeninx and about the cerebral blood vessels, a moderate swelling of the capillary endothelium, a moderate number of gitter cells in the perivascular spaces, and severe degenerative changes in the ganglion cells of the cerebral cortex and the Purkinje cells of the cerebellum. In addition the necropsy revealed atelectasis of the upper lobes and hypostatic congestion of the bases of both lungs and fatty degeneration of the liver.

Chemical analyses performed in the laboratory of Dr. C. W. Muehlberger, coroner's chemist for Cook County, Ill., revealed 6.0 mg. of lead per hundred grams of bone, 6.0 mg. per hundred grams of liver and 0.51 mg. per hundred grams of cerebral tissue.[19]

Although this child's precarious condition makes it doubtful whether he could have survived under any circumstances, we cannot but question the wisdom of our having used a local anesthetic for a patient known to be suffering from frequent generalized convulsions. In retrospect it would seem wiser to have utilized a general anesthetic which would have prevented the development of the terminal convulsion which was, in all probability, the immediate cause of death.

CASE 5.[20]—*Preoperative Course.*—A. M. R., a girl aged 7 years, referred to the University of Chicago Clinics by Dr. C. A. Elliott, of Chicago, was admitted Aug. 29, 1936. This child was well until three years previously, when she would at times lose her appetite for food and began to have spells of vomiting. Her mother stated that she had for four years had a most perverted appetite and that she frequently ate such material as sticks, dirt and paint from the stairs and woodwork. During this three year period she was always active and not confined to bed. Aug. 23, 1936, she again began to vomit, though more severely than previously. In the ensuing three days she was unable to take anything by mouth. August 27 she was admitted to the Woodlawn Hospital, Chicago, under the care of Dr. Elliott. She was in a semistuporous condition. There was rigidity of the neck, and Kernig's sign was present. Ophthalmoscopic examination revealed bilateral papilledema of 4 diopters, but no hemorrhages or exudates were seen. Examination of the blood revealed 4,710,000 erythrocytes, 16,150 leukocytes and 62 per cent hemoglobin. In the stained smear less than 5 per cent of the erythrocytes exhibited basophilic stippling. Roentgenograms of the long bones revealed typical lead lines of increased density in the metaphyses. In addition there were three other distinct lines of increased density somewhat removed from the epiphyses. These indicated that there had been at least three episodes of lead intoxication prior to the present one, the earliest two or three years previously.

Dr. Elliott, having made the diagnosis of lead encephalopathy, called us in consultation. We first saw her on August 29 and immediately transferred her to the University of Chicago Clinics for further care.

On admission she was stuporous but at times would cry out and move all four extremities. After the spells of crying, respiratory movements would often cease for several seconds. The pulse was irregular, ranging from 50 to 60 per minute. She would move in response to painful stimuli. There was severe rigidity of the neck, and Kernig's sign was marked. The pupils were widely dilated and reacted sluggishly to light. There was an internal strabismus due apparently to a left external rectus palsy. There was a severe papilledema with optic atrophy.

Diagnosis.—It was obvious that this was an aggravated and chronic case of lead poisoning with a very severe encephalopathy and marked intracranial hypertension. She was taken directly to the operating room.

Operation.—A right subtemporal decompression was made on August 29 at 7:30 p. m. When first exposed the dura mater was under great tension and it could not be opened safely. The lateral ventricle was punctured but only a few drops of fluid could be obtained, owing, we believe, to compression of the ventricles by cerebral edema. (In other cases we had seen definite internal hydrocephalus.) Although 65 cc. of 15 per cent sodium chloride was administered intravenously, which reduced the tension somewhat, the temporal lobe herniated out of the dural opening in a most alarming fashion.

The pulse, which had been irregular and only 52 per minute at the beginning of the operation, was regular at 108 per minute at its close.

Postoperative Course.—After the operation the child's condition gradually grew poorer and she died at 7:40 p. m. September 3.

Necropsy.—A postmortem examination was made by the coroner's physician, Dr. Howard Zeitlin. He found beginning bilateral bronchopneumonia. There was severe cerebral edema. The right temporal lobe had herniated through the dural defect to a marked degree. There was also a definite pressure cone about the cerebellar tonsils and medulla oblongata. The lateral ventricles were very small. No localized lesions of the brain other than these were seen grossly.

Chemical analyses of the tissues made in Dr. C. W. Muehlberger's laboratory revealed 1.28 mg. of lead in 100 Gm. of liver, 0.99 mg. of lead in 100 Gm. of kidney and 1.91 mg. of lead in 100 Gm. of bone.

It is obvious that in this case we were dealing with a most aggravated acute exacerbation of a chronic condition. It appears doubtful, to us, if any form of therapy could have proved more effective.

CONCLUSIONS

We are well aware that no definite conclusions as to the prevention of sequelae can be drawn from three cases. Nevertheless they indicate that the acute manifestations of lead encephalopathy can be relieved by surgical decompression with a sparing of vision, endangered by the papilledema, and the preservation of life, and suggest that this same procedure may be beneficial in preventing the development of the common sequelae, such as mental retardation, paralyses and tremor. True, one of these three patients is somewhat below average mentally. But it must be borne in mind that of the three children who survived Roy (case 1) was the most seriously ill, had suffered from his disease for three months and was the only one to have convulsions. This, as well as the observations made in case 5, may indicate not only that surgical decompression should be done in these cases but that it should be done as early as possible. Delay may prove costly.

SUMMARY

Of five patients who had lead encephalopathy with the manifestations of increased intracranial tension two died. One might possibly have been saved had a general rather than a local anesthetic been used. The other was far too ill when first seen to have been benefited at that late date from any form of therapy. The three

19. The mean values for the tissues from a series of children not suffering from lead intoxication as reported by Gant[18] are 0.182 ± 0.053 mg. of lead in 100 Gm. of liver; 0.090 ± 0.018 mg. of lead in 100 Gm. of kidney, and 1.535 ± 0.561 mg. of lead in 100 Gm. of bone.

20. This case was previously referred to by Grant[18] (case 6).

who survived have been followed since the operations for three, five and seven years. Two are perfectly normal physically, neurologically and mentally. One is physically in perfect health but is mentally somewhat below the average for his age and below his twin brother (not identical twin). However, he has surpassed his twin brother in physical development.

From observation of the cases and a review of the literature it is concluded that:

1. The development of the signs of increased intracranial pressure in a young child without definite localizing signs, especially when accompanied by convulsions or the manifestations of meningeal irritation or both, should suggest the possibility of lead encephalopathy. This condition can often be recognized by the presence of lines of increased density in the metaphyses of the long bones as demonstrated in the roentgenograms.

2. Surgical decompression of the brain is an effective means of relieving the symptoms of intracranial hypertension in such cases, of preserving life and vision and of preventing the development of sequelae if the treatment is not too long delayed.

3. General, not local, anesthesia should be used in operating in such cases.

4. It appears that either a suboccipital or a subtemporal decompression may be effective; which will be used must depend on the exigencies of the case.

THE OCULAR MANIFESTATIONS OF ARIBOFLAVINOSIS

A PROGRESS NOTE

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In a recent communication we presented observations on ocular changes noted in a small group of patients with ariboflavinosis.[1] Slit lamp examination showed that a superficial vascularizing keratitis was the principal ocular manifestation. The corneal lesions and associated symptoms and signs disappeared during the administration of riboflavin and recurred when it was withdrawn.

The present report deals with observations made on forty-seven persons shown to be receiving insufficient riboflavin. Several presented no labial or lingual signs of ariboflavinosis but had definite ocular changes which resolved during treatment with the vitamin. The nine patients mentioned in our preliminary report are included in this series.

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Drs. A. P. Briggs, C. M. Templeton, A. R. Kelly and D. Eggleston aided us throughout this study.

In addition to funds supplied by the three organizations with which the authors are affiliated, facilities available to the University of Georgia School of Medicine from a grant-in-aid by the John and Mary R. Markle Foundation also were used in the study. (Dr. Sydentricker is affiliated with the Department of Medicine, University of Georgia School of Medicine; Dr. Cleckley with the Department of Neuropsychiatry, University of Georgia School of Medicine, and Dr. Kruse with the Milbank Memorial Fund; Dr. Sebrell is a surgeon in the United States Public Health Service.)

1. Kruse, H. D.; Sydenstricker, V. P.; Sebrell, W. H., and Cleckley, H. M.: Ocular Manifestations of Ariboflavinosis, Pub. Health Rep. 55: 157 (Jan. 26) 1940.

SUBJECTS

The patients studied fell into three groups: Sixteen were hospitalized for nutritional disease, and of these eleven had pellagra or were known to have had typical pellagrous lesions within a year. Thirteen were outpatients; three of these were pellagrins in whom signs of ariboflavinosis developed during treatment with nicotinic acid. Eighteen were well nourished institutional employees provided with an apparently adequate diet; all but two of this group complained of cheilosis or of visual disturbances such as photophobia, dimness of vision or "eyestrain" not relieved by correction of refractive errors.

METHOD

Hospitalized patients were maintained on the basal diet deficient in all vitamins used in many previous experiments [2] and known to produce speedy relapse of pellagra when not supplemented with nicotinic acid. Signs of ariboflavinosis develop in from fourteen to thirty days after the addition of amounts of nicotinic acid sufficient to cure pellagra. (The term pellagra is used arbitrarily to designate the syndrome of glossitis and dermatitis, with or without psychic symptoms and diarrhea, specifically cured by nicotinic acid.) After an observation period of from five to seven days (except in cases 11 and 12, in which the condition was urgent) the predominant deficiency was treated with adequate doses of the appropriate vitamin. To avoid the effects of coincident deficiencies and precipitate the specific avitaminosis under study, the diet was supplemented by the daily administration of 20 mg. of thiamin chloride, 300 mg. of nicotinic acid, 50 mg. of ascorbic acid and 4 cc. of U. S. P. cod liver oil or 5,000 units of vitamin A. At times the dosage of various vitamins was increased to meet specific indications. After signs and symptoms of avitaminosis other than that of riboflavin had been controlled or when signs of ariboflavinosis developed in those patients being treated for predominant nicotinic acid deficiency (cases 3, 9, 10, 13), riboflavin was added. In seven instances (cases 3, 5, 7, 8, 13, 15, 51) treatment was discontinued after cure in order to observe relapse. In five (cases 3, 5, 7, 8, 51) repeated relapses were produced.

These patients were subjected to careful physical examinations with particular reference to disorders which might contribute to the development of nutritional deficiency. Neurologic and ophthalmoscopic examinations were made soon after admission. Erythrocytes, leukocytes, hemoglobin and cell volume were determined at weekly intervals. The concentration of vitamin A, nicotinic acid and ascorbic acid in the blood was estimated repeatedly in nine cases. The gastric contents after injection of histamine were examined each week. The lungs, heart and gastrointestinal tract were studied, often repeatedly, with the fluoroscope and roentgenograms. Electrocardiograms were made on admission and at intervals of a week. Tests for visual acuity and for dark adaptation were done repeatedly in ten cases. The eyes were examined with the slit lamp as soon as possible after admission and at intervals of two or three days thereafter.

Patients observed in the outpatient department were requested not to change their diets and to avoid taking yeast or cod liver oil except when prescribed. Physical examinations, blood counts, hemoglobin determinations and urinalyses were done. The eyes were inspected

2. Sydenstricker, V. P.; Schmidt, H. L., Jr.; Fulton, M. C.; New, J. S., and Geeslin, L. E.: Treatment of Pellagra with Nicotinic Acid, South. M. J. **31**: 1155 (Aug.) 1938.

with the slit lamp once each week. The group of eighteen institutional employees (physicians, nurses and technicians) was of great interest, since they were all well nourished and active, with none considered ill. Three were on restricted diets, patient 17 on account of cholelithiasis, patient 21 because of quiescent peptic ulcer and patient 36 for the prevention of allergic manifestations. All were cooperative in making no changes in their dietary habits. Slit lamp examinations were made daily or every other day after the discovery of signs of ariboflavinosis.

dose was divided into three or five aliquots given at appropriate intervals to avoid loss from excretion.

The significant observations on these three groups of subjects are presented in table 1. No statistical importance can be attached to the incidence by race, sex or age of ariboflavinosis in these persons since the hospitalized patients were with one exception quite ill and suffering from multiple dietary deficiencies, the outpatient group was similarly complicated and the eighteen institutional subjects form a specialized group of white adults between the ages of 20 and 48, above

TABLE 1.—*Symptoms and Signs in Forty-Seven Cases of Ariboflavinosis*

Case No.	Subject	Race	Sex	Age	Photophobia	Dimness of Vision	Conjunctivitis	Circumcorneal Injection	Vascularization of Cornea	Corneal Opacities	Pigmentation of Iris	Iritis	Cataract	Seborrhea	Cheilosis	Glossitis	Complications	Dosage of Riboflavin
									Hospitalized Patients									
1	J. M.	W	♂	36	+	+	+	+	+	..	..	..	..	+	+	+	Pellagra	3 mg.
2	L. H.	W	♀	68	..	+	+	+	..	+	..	..	+	+	+	+	Pellagra	5-25 mg.
5	A. S.	N	♀	27	+	+	+	+	+	+	..	+	..	+	+	+	Pellagra	5-15 mg.
6	L. S.	W	♀	59	+	+	..	+	+	..	..	+	+	+	+	+	Diabetes	5 mg.
7	C. S.	W	♀	45	..	+	..	+	..	..	..	..	+	+	+	+	Pellagra	5 mg.
8	G. S.	N	♀	19	+	+	+	+	+	+	..	+	..	+	+	+	.....	5-15 mg.
9	C. G.	W	♂	53	..	..	+	..	..	..	..	..	+	+	+	+	Pellagra	5 mg.
10	J. H.	W	♂	40	+	+	+	..	..	..	..	..	+	+	+	+	Pellagra	5 mg.
11	L. L.	W	♂	53	+	+	+	+	+	..	..	..	..	+	+	+	.....	5 mg.
12	A. B.	W	♀	47	+	+	..	+	..	..	+	..	+	+	+	+	Pellagra	5-mg.
13	B. W.	N	♀	25	+	+	+	+	+	+	..	..	..	+	+	+	Pellagra	5-10 mg.
14	P. U.	W	♀	50	+	+	+	+	+	+	..	..	..	+	+	+	.....	5 mg.
20	E. A.	W	♀	60	+	..	+	+	+	+	+	..	..	+	+	+	.....	5 mg.
43	J. M.	W	♂	68	+	+	+	+	+	+	+	..	..	..	+	+	Pellagra	5 mg.
44	I. S.	W	♀	56	+	+	+	+	+	+	+	..	..	+	+	+	.....	10 mg.
51	W. T.	W	♂	58	+	+	+	+	+	+	..	..	..	+	+	+	.....	3 mg.
									Outpatients									
15	N. A.	W	♀	46	+	..	..	+	+	+	..	..	..	+	+	+	Pellagra	5 mg.
18	W. G.	W	♀	43	+	+	+	+	+	..	..	..	..	+	+	+	Pellagra	5 mg.
23	A. R.	W	♀	50	+	+	+	+	+	+	+	..	..	..	+	+	.....	5-10 mg.
24	L. G.	W	♂	57	+	..	+	+	+	+	+	..	..	..	+	+	Pellagra	3 mg.
33	J. C.	W	♀	43	+	+	+	+	+	..	..	..	..	..	+	+	.....	6 mg.
39	B. C.	W	♀	50	+	+	..	+	+	+	..	..	..	..	+	+	Pellagra	3 mg.
45	G. R.	W	♀	40	+	+	+	+	+	..	+	..	+	+	+	+	.....	3 mg.
46	C. D.	W	♂	12	+	+	+	+	+	+	..	..	..	..	+	+	Allergy	10 mg.
47	K. W.	W	♀	15	+	+	+	+	+	+	..	..	..	..	+	+	Pellagra	3 mg.
48	S. M.	W	♀	33	+	+	+	+	+	..	..	..	..	..	+	+	.....	3 mg.
49	K. S.	W	♀	66	+	+	..	+	+	..	..	..	..	..	+	+	Cholecystitis	3 mg.
50	J. C.	W	♀	45	+	+	+	+	+	+	..	..	..	..	+	+	.....	3 mg.
52	A. T.	W	♀	36	+	+	+	+	+	..	..	..	..	..	+	+	Pregnancy	5 mg.
									Apparently Well Persons									
16	W. A.	W	♂	22	+	..	+	+	+	..	..	..	..	..	+	+	.....	3 mg.
17	S. P.	W	♀	40	+	..	+	+	+	..	..	..	..	..	+	+	Cholecystitis	3 mg.
19	J. H.	W	♂	28	+	..	+	+	+	..	..	..	..	..	+	..	.....	3 mg.
21	R. T.	W	♂	47	..	..	..	+	..	..	+	..	..	..	+	..	Peptic ulcer	3 mg.
22	J. M.	W	♂	29	+	+	+	+	+	..	+	..	..	..	+	+	Mydriasis	3 mg.
27	C. T.	W	♂	26	+	..	..	+	..	..	+	..	..	..	+	..	.....	3 mg.
28	J. B.	W	♂	32	..	..	+	+	+	+	+	..	..	..	..	..	.....	5 mg.
29	J. M.	W	♂	27	+	..	+	+	+	..	..	..	..	..	..	..	Mydriasis	3 mg.
30	H. S.	W	♂	26	+	..	..	+	..	..	+	..	..	..	..	..	.....	3 mg.
31	L. C.	W	♂	32	+	..	..	+	..	..	+	..	..	..	..	..	.....	3 mg.
32	W. C.	W	♂	28	+	..	+	+	+	+	+	..	..	..	..	..	.....	3 mg.
35	D. E.	W	♂	25	+	..	+	+	+	..	+	..	..	..	..	..	.....	3 mg.
36	C. W.	W	♀	40	+	+	+	+	+	..	..	..	..	..	..	..	Mydriasis	5 mg.
37	I. P.	W	♀	24	+	..	+	+	+	..	..	..	..	..	..	..	.....	3 mg.
38	C. W.	W	♂	24	+	..	+	+	+	..	+	..	..	..	..	..	.....	3 mg.
40	B. C.	W	♀	46	+	+	+	+	+	..	+	..	..	..	..	..	Mydriasis	10 mg.
41	D. W.	W	♀	28	+	..	+	+	..	..	+	..	..	..	..	..	.....	3 mg.
42	N. K.	W	♂	25	+	+	+	+	+	..	+	..	..	..	..	..	.....	3 mg.

DOSAGE AND METHODS OF ADMINISTRATION OF RIBOFLAVIN [3]

When patients were hospitalized, the usual dose of riboflavin was 5 mg. daily administered in tablets or capsules containing 1 mg. In certain instances from 10 to 25 mg. daily was given in tablets containing 5 mg.; three patients were treated during certain periods with a solution of riboflavin in 65 per cent propylene glycol injected intramuscularly in amounts containing from 3 to 5 mg. of the vitamin daily. Ambulant patients took from 3 to 10 mg. daily in tablets or capsules. The daily

3. It should be noted that riboflavin undergoes rapid changes when exposed to light. All preparations of this vitamin should be well protected from light at all times. We have seen relapse occur in eight instances from failure to keep preparations of riboflavin used for treatment in a dark place.

the average in physique and intelligence, with three exceptions free from known disease and with access to an adequate diet. The possible factors contributing to the development of an isolated avitaminosis in this latter group are the subject of present investigation. The incidence of symptoms and signs of ariboflavinosis in the forty-seven active cases is summarized in table 2.

OCULAR SYMPTOMS OF ARIBOFLAVINOSIS

Photophobia and dimness of vision not corrected by adjustment of refractive errors have been the most frequent symptoms in our patients. In those with severe conjunctival congestion and extensive corneal vascularization (patients 5, 8, 14, 24, 39) photophobia was extreme. Burning sensations of the eyeballs, "roughness" of the eyelids and extreme visual fatigue have

been almost equally common. Nine patients showed marked impairment of visual acuity in the absence of refractive error or opacity of the media. The mild visual disorders often attributed to focal infection, toxic states and eyestrain have been conspicuously frequent.

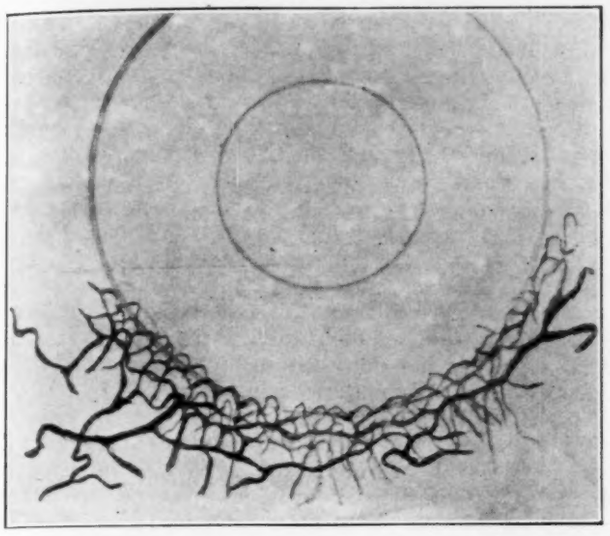

Fig. 1.—Diagram indicating the grade of congestion and proliferation of the limbic plexus which was found to be the earliest sign of ariboflavinosis.

The earliest and most common sign of ariboflavinosis is circumcorneal injection; it was present in forty-five cases of the series. Often it was grossly visible, frequently it could be seen with a hand lens or ophthalmoscope, and always it was obvious on slit lamp inspection as marked congestion and proliferation of the limbic plexus. In cases not showing limbic congestion, arcus senilis and cataract were present. For reasons not apparent, the presence of arcus senilis would seem to offer some obstacle to the extension of capillaries beyond the sclerocorneal junction. The normal decrease in the number of vessels in the limbic plexus with age may be

TABLE 2.—*Summary of Incidence of Symptoms and Signs in Forty-Seven Cases of Ariboflavinosis*

	16 Hospitalized Patients	13 Out-patients	18 Apparently Well Persons	Totals
Photophobia	14	13	16	43
Burning of eyes	11	13	16	40
Dimness of vision	14	11	4	29
Burning lips and tongue	12	9	6	27
Seborrhea	14	9	..	25
Cheilosis	16	13	6	35
Glossitis	16	13	3	32
Conjunctivitis	13	10	14	37
Circumcorneal injection	14	13	18	45
Corneal vascularization	11	13	13	37
Corneal opacities	9	7	2	18
Pigmentation of the iris	4	3	12	19
Iritis	4	..	..	4
Cataract	6	..	..	6

an obvious explanation. Gross injection of the vessels of the fornix and sclera without evidence of infection but for convenience tabulated as "conjunctivitis" was seen in all but four of those cases presenting circumcorneal congestion. Actual invasion of the cornea by capillaries arising from the limbic plexus was observed thirty-seven times, and extensive patterns of empty vessels were seen in two patients recalled for inspection. Superficial nebulas, seen grossly as slight "steaminess" of the cornea and with the slit lamp as a fine diffuse superficial opacity, were present in eighteen instances, and superficial punctate opacities were present in two cases. Interstitial nebulas were relatively uncommon, occurring only six times, while posterior punctate opacities were seen only four times.

As was noted in our preliminary report, the high incidence of circumcorneal congestion suggests involvement of the iris in ariboflavinosis. Frank iritis was seen in four cases of the present series, and moderate congestion of the iris with accumulation of pigment on its anterior surface was seen nineteen times. The latter condition, which is tabulated as pigmentation of the iris, was recognized to be abnormal only after accumulations and spots of pigment frequently had been seen to disappear during the administration of riboflavin. Mydriasis was striking in four patients; the incidence and behavior of mydriasis and of disturbances of accommodation will be the subject of a separate report. Cataract was observed in six of the group, all elderly persons. The possible relation of riboflavin deficiency to cataract in the human subject is under investigation.

THE PROCESS OF CORNEAL VASCULARIZATION

The earliest change which can be recognized with the slit lamp is marked proliferation and engorgement of the limbic plexus with the production of great numbers of very narrow capillary loops which outline the extreme margins of the scleral digitations and obliterate the normal narrow avascular zone between the plexus and the sclerocorneal junction (fig. 1). This condition can definitely be considered abnormal and possibly specific because it was seen in six patients with cheilosis (patients 16, 20, 21, 22, 27, 33), five of whom also complained of photophobia, and in three patients with photophobia but no cheilosis (patients 31, 35, 37). It was observed to progress to vascularization of the cornea within a week in the absence of treatment (patients 13, 20) and to regress rapidly during the administration of riboflavin to the other seven patients.

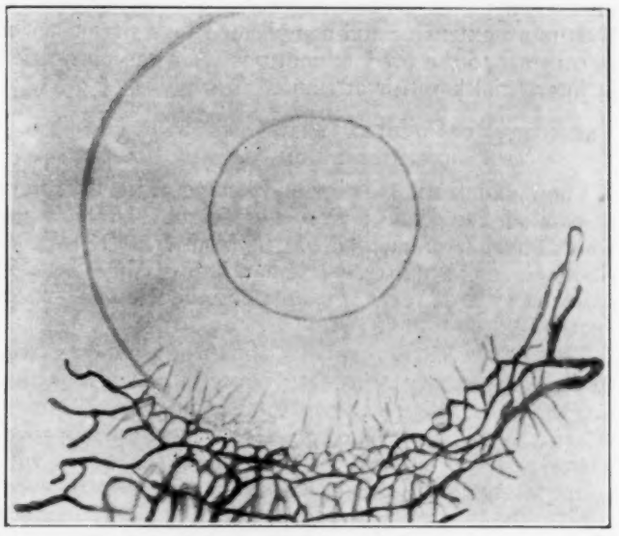

Fig. 2.—Diagram showing the earliest actual invasion of the subepithelial region of the cornea by capillaries.

The cornea is actually invaded first by very small capillaries arising from the apexes of loops surrounding the scleral digitations (fig. 2). These are most readily seen by retro-illumination and for optical reasons are most easily observed in the nasal and inferior quadrants of the cornea. Such capillaries lie just beneath the epithelium and soon anastomose to form a tier of loops from

which more single capillaries arise, extending centripetally. This process of anastomosis forms loops and projection of streamer-like capillaries from their apexes until extensive superficial vascularization is produced (figs. 3 and 4). Meanwhile, other penetrating vessels invade the substantia propria at varying depths. Much later capillaries extend deeply to form a plexus just within the endothelium; this was observed in three instances (cases 5, 8, 13). Superficial and interstitial opacities were observed to develop at various stages of the vascularizing process; the deposition of posterior opacities was not observed. In cases of chronic relapsing ariboflavinosis (cases 5, 8, 13, 46) the cornea presented universal vascularization and extensive superficial and interstitial nebulas. The superficial plexus has always been more extensive and complicated than the posterior in contrast to the predominant posterior vascularization in interstitial keratitis attributed to syphilis (fig. 5).

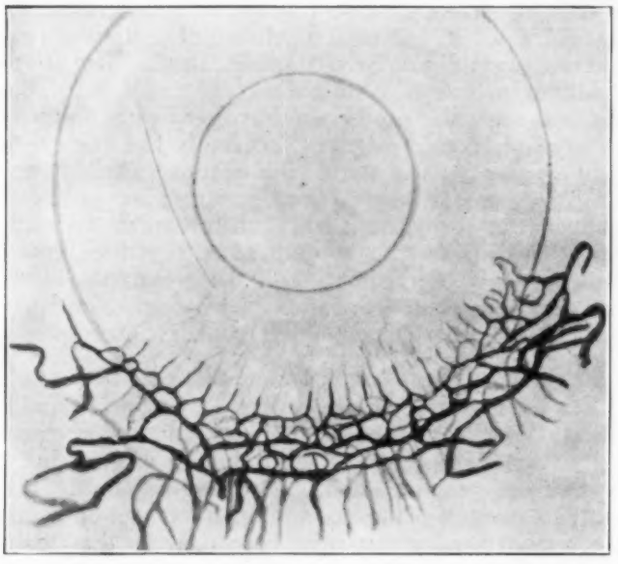

Fig. 3.—The progress of corneal vascularization in ariboflavinosis.

RESPONSE OF OCULAR SYMPTOMS AND SIGNS TO THE ADMINISTRATION OF RIBOFLAVIN

Photophobia and burning and itching of the eyes have responded regularly within forty-eight hours to the administration of daily doses of from 5 to 15 mg. of riboflavin. The most spectacular improvement was in patients with extreme photophobia and blepharospasm (patients 5 and 8, figs. 6, 7, 8).

The moderate photophobia of many patients was entirely alleviated twenty-four hours after the ingestion of from 3 to 5 mg. of the vitamin. Since the dimness of vision was largely subjective, the degree of improvement has been difficult to evaluate; all patients with mild objective impairment of visual acuity were relieved. Among the hospitalized patients who had determinations of visual acuity, improvement varied from 5/200 before treatment and 25/30 afterward in case 8 to no improvement in 25/30 vision in case 9.

The resolution of keratitis during the administration of riboflavin was rapid. The initial proliferation and congestion of the limbic plexus have always shown notable regression within forty-eight hours after the ingestion of from 6 to 10 mg. of the vitamin. Almost complete emptying of the capillary loops on the scleral digitations, narrowing and "beading" of the limbic loops from which they arose and definite narrowing of the small veins in the limbic plexus occurred with regularity. When invasion of the cornea had progressed only to the stage of straight streamer-like capillaries, complete emptying of the invading vessels was observed once after only 4 mg. of riboflavin had been ingested in twenty-four hours; ordinarily from 5 to 10 mg. during thirty-six to forty-eight hours was required. Blanching of the lips and tongue was coincident with the emptying of redundant corneal vessels. When vascularization was extensive the time required for emptying all vessels thought to be capillaries varied from five to eighteen days. In the three cases of chronic recurring keratitis (cases 5, 8, 13) a number of very large vessels were present which were never entirely empty of flowing blood though they were greatly reduced in caliber and the flow of blood was interrupted. In all instances the vessels remained visible as refractile or grayish streaks depending on the method of illumination used in inspection. Opacities did not clear in any direct relation to the emptying or apparent occlusion of newly formed vessels. In the same patient during different experimental periods the resolution of exudates has preceded and followed the emptying of capillaries by two or three days. Superficial opacities disappeared more slowly than interstitial nebulas, and posterior deposits were the last to clear.

In relapse produced by the withdrawal of riboflavin, photophobia was the first symptom to recur and always followed the reappearance of conjunctival injection; there was no direct relation to the reopening of corneal vessels (figs. 9 and 10). Impairment of visual acuity paralleled the objective signs of relapse in cases 5 and 8. Conjunctival injection was visible in from five to eight days after treatment was stopped. At the same time congestion of the limbic plexus with refilling of empty vascular channels could be seen with the slit lamp. With great regularity the superficial capillary plexus in the cornea reopened in from one to three days thereafter. Superficial and interstitial opacities became visible between the seventh and tenth days after withdrawal and tended to develop in the same regions of the cornea that had showed exudates before treatment. Cheilosis and glossitis seldom recurred before the end of the second week of experimental relapse.

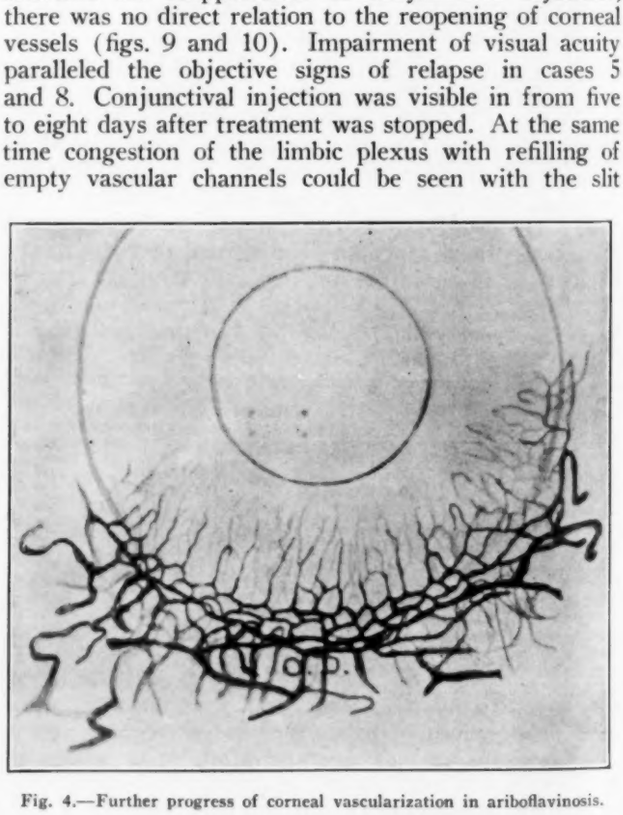

Fig. 4.—Further progress of corneal vascularization in ariboflavinosis.

The response of changes in the iris to the administration of riboflavin is the subject of continued investigation. In four cases of marked mydriasis (cases 22, 29, 36, 40) the pupils were greatly reduced in size and photophobia was much diminished after from three to five days of treatment. In nineteen cases (tables 1 and

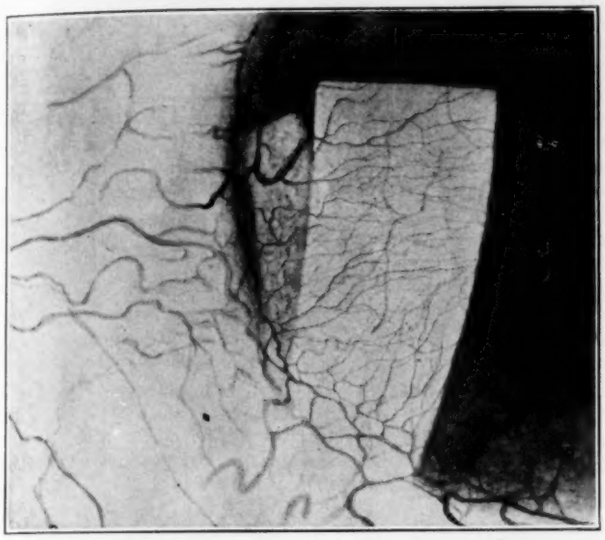

Fig. 5 (case 8).—Advanced dietary keratitis; semidiagrammatic drawing indicating the degree of vascularization of the cornea in spontaneous ariboflavinosis of long duration.

2) it was thought that abnormal pigmentation of the iris was present and that this was associated with congestion of the iris. The great variations in the appearance of the normal iris were given due consideration. In gray eyed individuals there were pigment spots on the iris, and in the brown eyed the detail of the anterior surface of the iris was obscured by shaggy accumulations of pigment. During treatment with riboflavin the pigment spots on the gray irises disintegrated, leaving areas of yellowish discoloration; in some instances particles of pigment seemed to become detached and could be seen in the lower angle of the anterior chamber. The brown irises lost their shaggy texture and the details of crypts and contraction furrows became sharply defined. Iritis was present in cases 5, 6, 8 and 12, with posterior synechiae in cases 5, 6 and 12. Marked resolution of exudate was observed in cases 5, 8 and 12 during treatment with riboflavin.

REPORT OF CASES

The following case reports are illustrative:

CASE 13.—B. W., a Negress aged 25, was admitted Nov. 3, 1939, with the diagnoses of peripheral neuritis and pellagra. She was emaciated and febrile and had diarrhea with from eight to ten stools daily. There was pellagrous dermatitis of the hands, elbows and ankles. Cheilosis and seborrhea were absent; there was slight redness of the edges of the tongue with no papillary atrophy. There was general lymphadenopathy and slight splenomegaly. The rectum and vagina showed typical lesions of venereal lymphogranuloma. There were marked sensory and reflex changes and great motor weakness in all four extremities. The blood contained 4.6 Gm. of hemoglobin per hundred cubic centimeters and 2,100,000 erythrocytes and 9,000 leukocytes per cubic millimeter. Dextrose and nonprotein nitrogen values were within normal limits. The content of vitamin A was 0.051 mg. per hundred cubic centimeters. The Wassermann and Kahn reactions were strongly positive. The cerebrospinal fluid showed no abnormalities. The Mantoux test was negative, the Frei test strongly positive. There was gastric achlorhydria after injection of histamine. Electrocardiograms showed small amplitude of QRS complexes and small T waves in all leads; there were no conduction disturbances. Slit lamp examination showed proliferation of the limbic plexus and slight anterior opacity of both corneas. Tests of visual acuity showed 15/30 for the right eye and 15/40 for the left eye. The patient was given the basal diet supplemented with 2 cc. of percomorph liver oil, 50 mg. of thiamin chloride intramuscularly, 500 mg. of nicotinic acid, 5 mg. of riboflavin and 50 mg. of ascorbic acid daily. Antisyphilitic treatment and treatment for venereal lymphogranuloma were instituted. By November 20 all signs of pellagra had disappeared and there was great improvement in the symptoms and signs of peripheral neuritis, so that the patient was able to feed herself and walk with assistance. Diarrhea with three stools daily persisted and was attributed to rectal lesions of venereal lymphogranuloma. No change in the appearance of the eyes was noted during this time. The daily dose of thiamin chloride was reduced to 15 mg. given by mouth. The experimental diet was discontinued and regular ward diet provided. The blood showed 0.14 mg. of vitamin A and 0.88 mg. of nicotinic acid per hundred cubic centimeters. On December 1 it was noted that there were many fine white comedones over the alae of the nose, that the buccal surface of the lips was red and that the tongue was purplish red with flattened papillae. Examination of the eyes with the slit lamp showed invasion of both corneas by capillary loops and sprouts and an interstitial nebula in the right eye with increase of anterior opacity in both eyes. By December 3 cheilosis had increased markedly and the patient complained of soreness of the tongue and photophobia; there was slight increase in the vascularization of the corneas. Riboflavin was increased to 10 mg. daily. Photophobia was absent on December 5 and there was slight decrease in limbic congestion. By December 8 cheilosis was healed, the tongue looked normal, limbic congestion was much less, approximately half the corneal vessels were empty and the interstitial opacity in the right cornea had disappeared. On December 13 the seborrheic lesions about the nose were healed, all corneal vessels were empty, the limbic plexuses looked normal and anterior opacities were much less marked. Visual acuity was 15/15 in each eye. On December 27 riboflavin was discontinued. Relapse occurred on January 14, 1940. Administration of 15 mg. of riboflavin daily was begun on January 21, with cure by January 26.

Fig. 6 (case 8).—Severe ariboflavinosis showing facial lesions, cheilosis and extreme photophobia with blepharospasm.

This patient developed lesions of ariboflavinosis while she was taking 5 mg. of riboflavin a day with other vitamin supplements sufficient to cure mild pellagra and severe peripheral neuritis; 10 mg. of riboflavin daily produced rapid cure of all signs and symptoms.

CASE 20.—E. A., a white woman aged 54, was admitted Jan. 13, 1940, complaining of weak eyes, sore mouth and tongue and pruritus vulvae resistant to local and endocrine treatment.

She was well developed and well nourished. There was marked photophobia with lacrimation, the conjunctivas were much injected and the pupils were large but reacted to light and in accommodation. Slight seborrhea of the forehead and malar eminences was noted. There were severe cheilosis and glossitis, typical of ariboflavinosis. Dermatitis of the exposed skin areas was absent. Results of the general physical examination were

Fig. 7 (case 8).—Appearance after four days' treatment with riboflavin. Facial lesions are healed with marked photophobia persisting.

not significant. There was fiery red dermatitis of the perineum and adjacent inner surfaces of the thighs; the introitus and vagina were fiery red with a serous discharge. There were no neurologic abnormalities. The blood contained 14.2 Gm. of hemoglobin per hundred cubic centimeters and 4,250,000 erythrocytes and 8,500 leukocytes per cubic millimeter. Dextrose and nonprotein nitrogen values were normal. The vitamin A content was 0.48 mg., nicotinic acid 0.19 mg. and ascorbic acid 0.7 mg. per hundred cubic centimeters. The Wassermann and Kahn reactions were negative. The cerebrospinal fluid was normal in all respects. The Mantoux and Frei reactions were negative. Values for the gastric acidity were free hydrochloric acid 17, total acidity 73. Electrocardiograms were normal. Examination of the eyes with the slit lamp showed marked congestion and proliferation of the limbic plexus with very numerous loops and sprouting capillaries invading the cornea superficially and extending centripetally for about one fourth its radius. There was moderate anterior opacity of both corneas and several interstitial nebulas were noted in both. The irises seemed normal. Visual acuity was 15/20, 15/20. The patient was given the basal diet supplemented by 4 cc. of U. S. P. cod liver oil, 20 mg. of thiamin chloride, 300 mg. of nicotinic acid and 50 mg. of ascorbic acid. During the ensuing six days there was no marked change in cheilosis, glossitis or the perineal lesions. Photophobia increased slightly and there was some increase in the number of corneal vessels. January 19 5 mg. of riboflavin was added to the daily treatment schedule. January 21 photophobia was much less, though there were no evident changes in the eyes on slit lamp examination. The pruritus vulvae was very much diminished and there was some fading of the redness of the introitus. On the following day there was very evident emptying of the corneal vessels and of the limbic plexus. By January 24 all vessels in the cornea were empty and there was much clearing of the interstitial nebulas. February 1 the limbic plexus looked normal, slight anterior opacity persisted but interstitial opacity was not visible anywhere. Visual acuity was 15/20, 15/20.

CASE 23.—A. R., a white woman aged 50, was seen as an outpatient on Jan. 3, 1940, complaining of soreness of the tongue and lips and photophobia. She also complained of progressive dimness of vision over a period of two years, not helped by frequent changes in her glasses, and of inability to write legibly on account of poor vision. The patient was intelligent, appeared well educated and had no financial problems, but for a long while she had used a limited diet on account of "colitis." She was well developed and well nourished. Photophobia, lacrimation and slight blepharospasm were present, the conjunctivas were injected, and the pupils were large with normal reaction to light and in accommodation. Seborrhea was absent. There was severe cheilosis with deep painful fissures of the commissures, and the tongue was magenta with large flattened papillae. General physical examination showed slight enlargement of the heart and moderate hypertension. There were no abnormal neurologic features. The blood contained 13.5 Gm. of hemoglobin per hundred cubic centimeters and 4,500,000 erythrocytes and 5,200 leukocytes per cubic millimeter. Dextrose and nonprotein nitrogen values were not increased; the Wassermann and Kahn reactions were negative. Ophthalmoscopic examination showed slight pericorneal injection, moderate opacity of the media and normal optic disks; the retinal arteries were small and somewhat tortuous. Examination with the slit lamp showed great congestion and proliferation of the limbic plexus with very many capillaries invading the cornea superficially and extending over about one third its radius in each eye; there were no interstitial or deep vessels. There was diffuse anterior opacity with small punctate anterior deposits of both corneas. The architecture of the irises was clear but there were numerous brown pigment spots on both.

The patient was advised to continue her dietary habits and was given riboflavin 10 mg. daily. Seven days later she returned for observation. Photophobia and lacrimation were absent and the widening of the lid slits was striking; the conjunctivas were clear and the pupils much smaller. Cheilosis and glossitis were healed and she volunteered the information that her appetite was much improved. Examination with the slit lamp showed striking diminution in the size and number of the limbic vessels. All vessels in the corneas were empty and the superficial opacities had diminished about 50 per cent. The anterior punctate deposits were not changed. The pigment spots on the irises were reduced about 50 per cent in size. The dose of riboflavin was reduced to 5 mg. daily. Ten days later all opacities and deposits were absent, the limbic plexus looked normal, all corneal vessels remained empty though readily visible, and all pigment spots on the irises had disappeared, leaving yellow stains. The patient volunteered the information

Fig. 8 (case 8).—Cure of keratitis, facial lesions and cheilosis after ten days' treatment with riboflavin.

that she was able to read signs in show windows across the street for the first time in two years.

CASE 28.—J. B., a white man aged 30, examined on Jan. 23, 1940, because of slight photophobia, was sparely nourished but well developed. There was evident photophobia with narrowing of the lid slits and marked lacrimation during examination with the slit lamp. The conjunctivas were mildly congested; the pupils seemed normal. Cheilosis and glossitis were absent. Slit lamp inspection showed great congestion and

proliferation of the limbic plexus and extensive superficial vascularization of the corneas, with capillary loops and sprouts extending centripetally about one third of the radius. There was slight anterior opacity of both corneas. There was a large pigment spot on the nasal portion of the right iris, but the irises seemed otherwise normal. The patient was advised not to modify his diet and was given 5 mg. of riboflavin daily.

Fig. 9 (case 8).—Relapse on the ninth day following withdrawal of riboflavin, with extreme photophobia and blepharospasm. There was complete refilling of corneal vessels.

January 25 photophobia was markedly less and the lid slits were wider. The slit lamp showed that the limbic plexus was much less congested and that all the terminal sprouts and a great many of the invading loops in the corneas were empty; no change was evident in the anterior opacities but the pigment spot on the right iris was disintegrating. January 28, the fifth day of treatment, the limbic plexus looked normal. All vessels in the cornea were empty except two very large horizontally directed vessels on the nasal quadrant of the left cornea; the opacities were hardly visible and the pigment spot on the right iris had disappeared, leaving a slight yellowish stain. By February 2 all vessels in the cornea were empty and the opacities cleared. It was notable that the expression of the patient was changed by the absence of his habitual squint.

CASE 35.—D. E., a white man aged 24, examined on Feb. 2, 1940, had no complaints but was examined in the course of a survey of employees of an institution among whom signs of ariboflavinosis were extraordinarily frequent. Nutrition and development were excellent. There was evident photophobia with slight lacrimation, the conjunctivas were mildly injected and the pupils were wide. Cheilosis and glossitis were absent. Inspection with the slit lamp showed engorgement and proliferation of the limbic plexus in each eye with rather large capillary loops outlining the extreme periphery of each scleral digitation. Careful examination failed to show any vessels actually invading the cornea. There were no nebulas. There were several pigment spots on each iris but no evidence of exudates. Riboflavin, 3 mg. daily, was prescribed and the patient was advised against changes in diet. February 5 there was obvious absence of photophobia and lacrimation during examination. The vessels of the limbic plexus were much less prominent, many of the capillary loops outlining the scleral digitations were empty and in many others the flow of blood had stopped, though "beads" of trapped cells were visible. It was estimated that only about 25 per cent of these loops remained open. The pigment spots on the irises had diminished in size and density. February 9 photophobia was absent, the pupils were much smaller, the limbic plexus looked normal and all loops in the digitations of the sclera were empty; the pigment spots were represented by yellow stains with a few granules of pigment still adhering.

COMMENT

The observations on keratitis due to riboflavin deficiency recorded in our preliminary report have been considerably extended and evidence has been secured that certain changes in the iris as well may be a manifestation of this avitaminosis. Functional disturbances of vision out of proportion to visible changes in the cornea were present in a number of patients with oral and lingual as well as ocular lesions of ariboflavinosis. Ocular and oral lesions were observed during their development on a diet lacking in riboflavin but supplemented with adequate amounts of other vitamins. Similar lesions were seen in patients with definite histories of dietary deficiency. In a relatively large group of apparently normal persons with access to an adequate diet but complaining of functional ocular disturbances, mild keratitis and iritis were present but oral lesions were recognized in only one third. In every instance there were relief of functional disturbances and marked improvement or cure of visible anatomic lesions during the administration of riboflavin. In seven of the sixteen hospitalized patients and eleven of the thirty-one ambulant subjects, riboflavin was withheld after cure was apparently complete. Relapse occurred in every instance and cure was again obtained by the administration of the vitamin. Ocular symptoms and signs recurred quite regularly before cheilosis or glossitis was evident.

The incidence of ariboflavinosis as an apparently uncomplicated avitaminosis was surprisingly high in the present series. Fourteen of the patients had signs of pellagra or were known to have had them within a year. The remaining patients had never had the symptoms or signs commonly associated with that syndrome. Gastrointestinal or biliary disease was present in only three instances. Bad dietary habits with inadequate intake of milk, eggs and green vegetables were prevalent in the entire group. It seems possible that

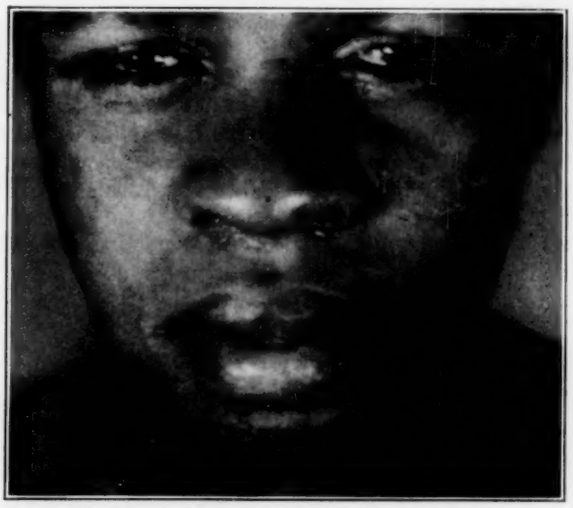

Fig. 10 (case 8).—Cure of relapse on the eleventh day of treatment with riboflavin.

other conditioning factors as yet undetermined may be potent in the production of ariboflavinosis.

The signs of human ariboflavinosis were first recognized by Sebrell and Butler [4] in patients maintained on an experimental diet very low in riboflavin. Redness of the buccal surface of the lips, abnormal redness and

4. Sebrell, W. H., Jr., and Butler, R. E.: Riboflavin Deficiency in Man, Public Health Rep. **53**: 2282 (Dec. 30) 1938; Riboflavin Deficiency in Man (Ariboflavinosis), ibid. **54**: 2121 (Dec. 1) 1939.

desquamation of the vermilion areas, maceration of the commissures of the lips with subsequent fissuring and the production of rhagades were constant. Seborrhea of the nasolabial folds, alae nasi, eyelids and ears was frequent. Further observations have shown that seborrhea and follicular keratosis of the forehead, malar eminences and chin, the so-called "shark skin" eruption, are common. Very often there are fine filiform comedones over the cheeks and chin which simulate "urea frost." These lesions of the face and lips have long been considered signs of pellagra and have been described under various names.[5] Subsequent clinical reports[6] have confirmed the specificity of these signs for riboflavin deficiency. Recently a specific type of glossitis has been described.[7] The tongue is clean, purplish red or magenta and frequently fissured. The papillae are large and flattened or mushroom shaped, giving the organ a coarsely granular texture. This type of glossitis is constantly present in patients with cheilosis and seborrheic lesions and may precede these manifestations. We frequently have seen it develop in pellagrins whose scarlet, denuded and atrophic tongues had become normal under treatment with nicotinic acid but whose diet remained deficient in riboflavin for several weeks. This glossitis has caused much confusion in the interpretation of the results of treatment of nicotinic acid deficiency since it has commonly been considered a sign of relapse of typical pellagra. Symptoms associated with the labial and lingual signs of ariboflavinosis are soreness of the lips and tongue, often with persistent burning paresthesia, pain on opening the mouth caused by stretching of the commissural fissures and sometimes dysphagia from tenderness of the tongue. Dermatitis, which is such a constant lesion in the ariboflavinosis of rats, has no definite parallel in human beings, though healing of dry scaling dermatitis of the hands and of universal seborrheic dermatitis has been observed during treatment with riboflavin.[8]

Several observers previously have noted ocular symptoms and signs in patients with the oral signs of ariboflavinosis.[9] Spies, Vilter and Ashe[10] noted impairment of vision, burning of the eyes, mydriasis and conjunctivitis in 70 per cent of one of their series of pellagrins. Though the symptoms and signs were suspected of being evidence of vitamin A deficiency, it was noted that a number of patients were relieved by the administration of riboflavin. Spies described similar symptoms in fifty cases of malnutrition which were relieved by the administration of oleum percomorpheum or carotene. Pock-Steen[11] described conjunctival irritation, photophobia, dimness of vision, poor vision in dim light (aknephascopia), mydriasis, disturbances of accommodation and keratitis in 109 patients with sprue. These symptoms and signs were cured by riboflavin in seventy-eight instances. No report on the minute examination of the cornea and iris in human ariboflavinosis had appeared prior to our preliminary observations,[1] though the experimental background is unusually suggestive.

Goldberger and Lillie[12] in 1926 observed "ophthalmia," fissures at the angles of the mouth, glossitis and a specialized type of dermatitis in rats deprived of the heat stable fraction of yeast. Day and his collaborators,[13] O'Brien[14] and Bourne and Pyke[15] have emphasized the incidence of cataract and of keratitis in rats maintained on a diet lacking in riboflavin. Day, Darby and Langston[16] showed that these eye lesions could be prevented by the administration of "vitamin G," and Day and others noted that corneal opacities visible with the ophthalmoscope disappeared during treatment with riboflavin (vitamin G) but that cataract seemed to be an irreversible lesion. El Sadr[17] also was able to cure all ocular lesions in rats except cataract with riboflavin after "ophthalmia" had been produced by a flavin deficient diet. O'Brien[14] was able to arrest the progress of cataract at any stage by the administration of substances rich in riboflavin but did not report resolution of lenticular changes. Bessey and Wolbach[18] and Eckardt and Johnson[19] were unable to produce cataract in rats with any regularity by riboflavin deprivation, but both groups of observers noted the high incidence of keratitis in their animals. Bessey and Wolbach using the slit lamp in vivo and injection methods post mortem found that vascularization of the cornea was the earliest and most constant manifestation of riboflavin deficiency in the rat. Superficial and interstitial opacities occurred later from leukocytic infiltration of the epithelium and substantia propria. The newly formed vessels were rapidly occluded and exudates were absorbed after the administration of riboflavin. Lesions of the iris have not been noted in animal experiments, though O'Brien seems to have been the only investigator to mention the histologic appearance of this structure. This author also noted that mydriasis was an early sign of riboflavin deficiency in his animals.[14]

Our observations would indicate that there is a singular parallelism between the ocular lesions of

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6. Oden, J. W.; Oden, L. H., Jr., and Sebrell, W. H.: Report of Three Cases of Ariboflavinosis, Pub. Health Rep. **54**: 790 (May 12) 1939. Spies, T. D.; Bean, W. B., and Ashe, W. F.: Recent Advances in the Treatment of Pellagra and Associated Deficiencies, Ann. Int. Med. **12**: 1830 (May) 1939. Jolliffe, Norman; Fein, H. D., and Rosenblum, L. A.: Riboflavin Deficiency in Man, New England J. Med. **221**: 921 (Dec. 14) 1939. Sydenstricker, Geeslin, Templeton and Weaver.[8] Spies, Vilter and Ashe.[10]

7. Jolliffe, Norman: Personal communication to the authors. Kruse, Sydenstricker, Sebrell and Cleckley.[1]

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10. Spies, T. D.; Vilter, R. W., and Ashe, W. F.: Pellagra, Beriberi and Riboflavin Deficiency in Human Beings: Diagnosis and Treatment, J. A. M. A. **113**: 931 (Sept. 2) 1939.

11. Pock-Steen, P. H.: Eye Symptoms in Patients with Leiodystonia and Sprue: Aknephaskopia, Geneesk. tijdschr. v. Nederl.-Indië **78**: 1986 (Aug. 8) 1939.

12. Goldberger, Joseph, and Lillie, R. D.: A Note on an Experimental Pellagra-like Condition in the Albino Rat, Pub. Health Rep. **41**: 1025 (May 28) 1926.

13. Day, P. L.; Langston, W. C., and O'Brien, C. S.: Cataract and Other Ocular Changes in Vitamin G Deficiency: Experimental Study on Albino Rats, Am. J. Ophth. **14**: 1005 (Oct.) 1931. Langston, W. C., and Day, P. L.: Nutritional Cataract in the Norway Rat, South. M. J. **26**: 296 (Feb.) 1933. Langston, W. C.; Day, P. L., and Cosgrove, K. W.: Cataract in the Albino Mouse Resulting from a Deficiency of Vitamin G (B_2), Arch. Ophth. **10**: 508 (Oct.) 1933. Day, P. L., and Langston, W. C.: Further Experiments with Cataract in Albino Rats Resulting from the Withdrawal of Vitamin G (B_2) from the Diet, J. Nutrition **7**: 97 (Jan.) 1934. Langston, W. C., and Day, P. L.: Arrest of Nutritional Cataract in Albino Rats by the Use of Vitamin G (B_2), South. M. J. **27**: 170 (Feb.) 1934. Day, Darby and Langston.[16]

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18. Bessey, O. A., and Wolbach, S. B.: Vascularization of the Cornea of the Rat in Riboflavin Deficiency with a Note on Corneal Vascularization in Vitamin A Deficiency, J. Exper. Med. **69**: 1 (Jan.) 1939; Abstr. Am. J. Ophth. **22**: 322 (March) 1939.

19. Eckhardt, R. E., and Johnson, L. V.: Nutritional Cataract and Relation of Galactose to Appearance of Senile Suture Line in Rats, Arch. Ophth. **21**: 315-327 (Feb.) 1939.

experimental ariboflavinosis in rats and those of the experimental and spontaneous avitaminosis in human subjects. All grades of corneal vascularization, curable with riboflavin, have been seen. Before actual invasion of the cornea by capillaries there is striking increase in the size and number of the vessels composing the limbic plexus, the capillaries are large and turgid and obviously increased in number, the normal narrow avascular zone between the limbic plexus and the sclerocorneal junction is replaced by a dense capillary network and each scleral digitation is outlined by a capillary loop. This appearance, which would not otherwise have been considered abnormal, was associated with ocular symptoms, particularly photophobia and burning and itching of the eyes, and it disappeared during the administration of riboflavin. It would seem that proliferation and congestion of the limbic plexus, often visible grossly as pericorneal injection, is the earliest sign of ariboflavinosis. In five of our cases this was true, though other signs were recognized later. Frequent examination with the slit lamp has shown that only a few days may elapse before actual invasion of the cornea by capillaries. Abnormal accumulation of pigment (probably of pigment bearing wandering cells) on the anterior surface of the iris has been striking in the majority of our early cases. The significance of this sign is not yet apparent, and we are not yet able to differentiate between "hazel spots" and pigment spots on the gray iris except by therapeutic test. The shaggy smoothed out appearance of the brown iris in ariboflavinosis is more easily recognized. In both types of irises there has been evidence of congestion of the iridic plexus in every instance of hyperpigmentation.

Many of our cases were in the early stages of keratitis and were not allowed to progress to the development of interstitial vascularization or of exudation. The relative incidence of signs and symptoms in tables 1 and 2 therefore represents various stages and the course of events in the progress of the condition rather than the variability of the pathologic condition at one stage. Particularly it should be noted that the more severe manifestations, such as exudates and opacities, have regularly appeared when riboflavin deprivation was allowed to continue. For the same reason superficial vascularization and opacity were more frequent than deep. The "dietary keratitis" always begins as a superficial or subepithelial vascularization of the cornea, superficial opacity is apt to follow, and later the invading vessels penetrate the substantia propria and are not apt to form a posterior plexus unless the deficiency is severe and prolonged. Interstitial nebulas may appear at any time after vascular invasion of the substantia propria; "posterior deposits" have been rare and occur only in the advanced cases with subendothelial vascularization. It is striking and probably significant that the vascularization of dietary keratitis is predominantly anterior while that of "syphilitic" keratitis is posterior. The late stages of the two conditions may be strikingly similar in appearance.

The functional disturbances of the eye associated with ariboflavinosis are of great interest. Photophobia, dimness of vision and ocular discomfort not improved after correction of refractive defects have been exceedingly common in our patients. Slit lamp examination has not failed to show some abnormality of the cornea or iris in patients complaining of these symptoms. The administration of riboflavin has caused prompt and sometimes dramatic relief of symptoms as well as resolution of signs. When a slit lamp is not available it would seem justifiable to give riboflavin in adequate amounts to patients with such complaints as a therapeutic test. The questions of the possible relation of ariboflavinosis to such functional disturbances as spastic mydriasis and accommodation defect and such organic changes as cataract and iritis are important and will be the subjects of future reports. A possible relation of riboflavin to the function of vitamin A is suggested by the similarity of the visual disturbances attributed to the two vitamins.

The physiologic background for the production of ocular lesions by riboflavin deficiency has been presented by Bessey and Wolbach.[17] Assuming that riboflavin is essential for the respiratory processes of all living cells, that normally it is ubiquitous and that the cornea respires only through its epithelial layer, the transfer of oxygen from the air to the deeper layers of the cornea must depend on the ability of the epithelium to transport it. Since riboflavin is apparently essential for the transportation of oxygen through the epithelium, when it is lacking asphyxia of the substantia propria results and vascularization of the cornea occurs as a compensatory process to bring blood in closer contact with the deeper layers.

SUMMARY AND CONCLUSIONS

Forty-seven patients with ocular symptoms and signs were cured by the administration of riboflavin. Examination with the slit lamp showed that proliferation and engorgement of the limbic plexus was the earliest lesion; this progressed to superficial vascularization of the cornea and the production of interstitial keratitis. Exudates were relatively infrequent but occurred in all the layers of the cornea.

Ocular symptoms were frequently those hitherto attributed to vague etiologic factors such as "toxic states," "focal infection" and "eye strain." Photophobia, dimness of vision and actual impairment of visual acuity were promptly, even dramatically, relieved by the administration of riboflavin, in some instances before visible changes occurred in the cornea.

Congestion of the sclera, vascularization and opacities of the cornea and abnormal pigmentation of the iris responded rapidly to the administration of riboflavin. When other signs of ariboflavinosis were present, they disappeared concurrently with the ocular lesions.

Ariboflavinosis is possibly the most prevalent apparently uncomplicated avitaminosis; it is possible also that it is more easily recognized than others on account of the specific lesions of the eye which occur early in the period of deficiency. The various factors contributing to clinical ariboflavinosis are not yet known.

Reference to Epilepsy in the Bible.—The first reference to epilepsy in the Bible is said to be the case of Balaam, the son of Beor, who fell into a trance with his eyes open and saw visions and heard the words of God. This has been described by certain of the older writers as a case of 'Furor a Dionysio.' . . . Other cases occur in the New Testament which are even more striking and characteristic. Such, for instance, is the case of Saul who, on the road to Damascus, had a definite optical aura, followed by a fall to the ground due to the commencing tonic spasm, and on partial recovery had hallucinations of the special senses and had to be led away in a condition of postepileptic stupor which lasted some three days, during which period he took no food. From this state he began to recover after the visit of Ananias, took food "and was strengthened" and slowly made a complete recovery.—Whitwell, J. R.: Historical Notes on Psychiatry, London, H. K. Lewis & Co., Ltd., 1936.

THE TREATMENT OF PREPUBERAL VULVOVAGINITIS WITH A NEW SYNTHETIC ESTROGEN

PRELIMINARY REPORT

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AND
CONRAD G. COLLINS, M.D.
NEW ORLEANS

The first attempt to treat vulvovaginitis in infants and children with estrogenic biologic substance was in 1933, when Lewis [1] used it intramuscularly in eight cases. He succeeded in curing six cases. Subsequent attempts by others resulted in variable responses. Te Linde and Brawner [2] were successful in curing only one case in eleven, and Witherspoon [3] failed to obtain any successful result in ten cases. On the other hand, Goldberg, Minier and Smith [4] cured seven of nine cases and Limper and Hieronymus reported cures in twenty-four of their series of twenty-seven cases.

All these investigators used the biologic estrogens intramuscularly and in suppositories, because attempts

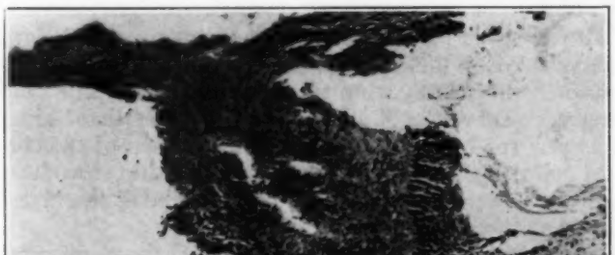

Fig. 1.—Section of vaginal mucous membrane from patient with gonorrheal vulvovaginitis before institution of treatment, showing typical infant vaginal mucosa.

to administer them orally had been unsatisfactory. For example, Te Linde [5] used them orally in doses of from 3,000 to 16,000 international units for periods of from sixty-nine to 123 days without success. British physicians also used daily doses of from 3,000 to 6,000 units orally with equally unfavorable results. The duration of their treatment varied from a few weeks to a few months.

Te Linde has shown that the vaginal administration of suppositories containing biologic estrogens is far more efficacious than either the oral or the hypodermic route. In a series of 175 cases all were cured. He recommends the nightly use of a suppository containing from 600 to 1,000 international units. The duration of treatment varied from three to six weeks. In a previous study, one of us [6] obtained similar results in a series of twenty-six cases. Equally good results were reported by Mayer.

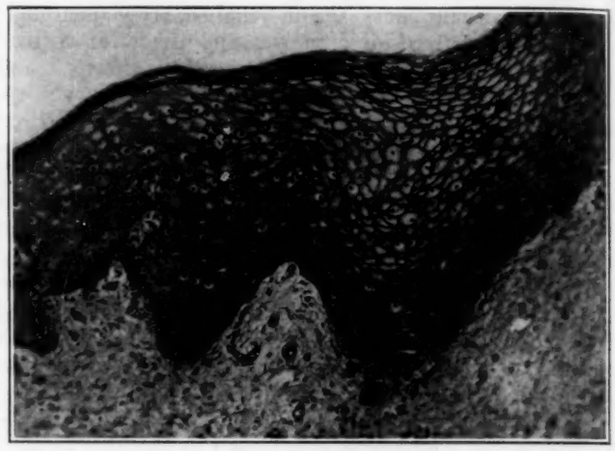

Fig. 2.—Section of vaginal mucous membrane from patient with gonorrheal vulvovaginitis five days after institution of treatment with diethylstilbestrol, showing marked adult type of mucosa.

These results prove the efficacy of the biologic estrogens in the treatment of prepuberal vulvovaginitis and indicate that thus far the vaginal mode of administration is superior to the intramuscular and oral routes.

DIETHYLSTILBESTROL

Dodds and his co-workers [7] in 1938 introduced a new synthetic preparation, 4:4-dihydroxy-alpha:beta-diethyl stilbene, known to British investigators also simply as diethylstilbestrol. They claim that it possesses marked estrogenic properties. When standardized by the Allen-Doisy method, 1 mg. was found to have the same activity as 25,000 international units of estrone.

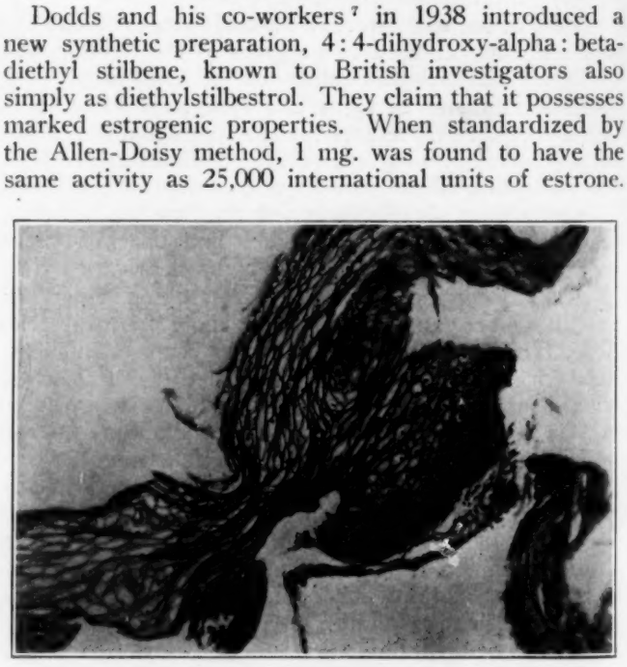

Fig. 3.—Section of vaginal mucous membrane from patient with gonorrheal vulvovaginitis seven days after cessation of treatment with diethylstilbestrol, showing adult type of mucosa and illustrating marked cornification.

Diethylstilbestrol has been proved to be an active estrogen in human beings as well as in experimental animals, and numerous reports of its use in adults confirm this.

Dr. Robert A. Strong, of the Department of Pediatrics, Tulane University of Louisiana, gave advice in the preparation of this article.

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From the Department of Pediatrics and the Department of Gynecology, Tulane University of Louisiana School of Medicine, and the Hutchinson Memorial Clinic and Charity Hospital Clinic.

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One of us (C. G. C.) used this substance intramuscularly in the treatment of menopausal symptoms in a series of fifty women and found it as efficacious as the biologic estrogens in controlling the unpleasant subjective symptoms manifested. In an additional fifty cases, in which we have used the drug orally for the same purpose, we have obtained similarly good results. It is apparently as effective orally as it is intramuscularly.

Studies on the toxicity of diethylstilbestrol indicate a broad margin of safety between the toxic and the effective dose for the laboratory animal. The intravenous lethal dose for the cat (the lowest for any animal tested) is 30 mg. per kilogram. We have not observed any toxic effects in patients to whom we have administered the drug. The only unpleasant symptom noted in our series of menopausal cases has been occasional nausea.

MATERIAL

Our material for this report consists of twenty-five cases of gonorrheal vulvovaginitis from the departments of pediatrics and gynecology of the Hutchinson Memorial Clinic and the Charity Hospital clinics. All cases

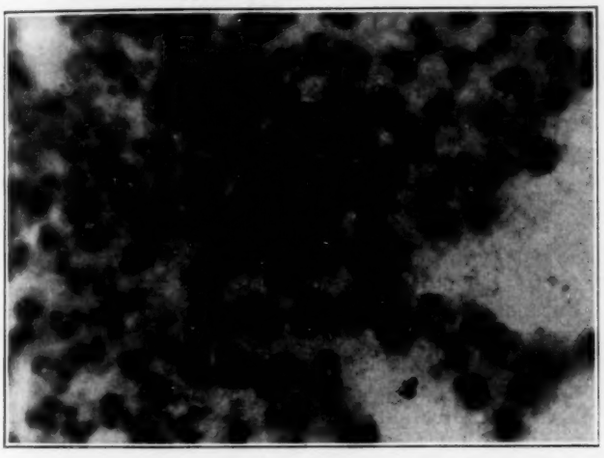

Fig. 4.—Smear of material taken from the vagina of an infant with gonorrheal vulvovaginitis, showing pus cells, gram-negative intracellular diplococci and an occasional immature nucleated epithelial cell.

were proved gonorrheal by smears stained by Gram's method and checked both by the pathology laboratories of Charity Hospital and by us. The youngest child treated was 20 months and the oldest was 12 years of age. There were six white and nineteen Negro children treated. The social service departments of Charity Hospital and the Hutchinson Memorial Clinic cooperated closely in having these patients keep their clinic appointments, and as a consequence opportunity was afforded us to keep a constant check on each case. Following the diagnosis and institution of treatment the patients reported weekly for three weeks, at which times smears were made and examined. Following three negative smears the patients were instructed to report at monthly intervals until two more consecutive negative smears were obtained. Thus when five consecutive negative smears were obtained the patient was discharged.

METHOD AND RESULTS

On diagnosis of gonorrheal vulvovaginitis the child, irrespective of age, weight, duration of symptoms or previous therapy, was given a 1 mg. tablet of diethylstilbestrol three times a day until twenty had been taken. The tablet was crushed and administered in 2 ounces (60 cc.) of milk. The usual prophylactic methods and instructions were given to the mother, but the only form of treatment given was orally administered diethylstilbestrol. In twenty-two cases negative smears for pus and gonococci were obtained at the end of seven days of treatment. Two cases required nine days of treatment (27 mg.) and eighteen days of treat-

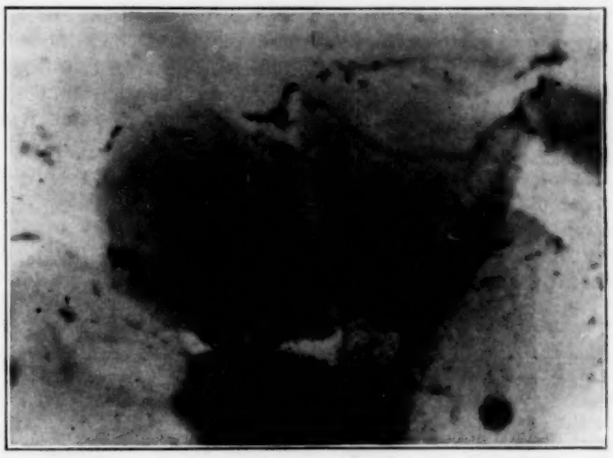

Fig. 5.—Smear of material taken from the vagina of an infant with gonorrheal vulvovaginitis five days after treatment with diethylstilbestrol, showing very large cornified epithelial cells with pyknotic nuclei. Pus cells and gram-negative diplococci have completely disappeared.

ment (54 mg.) respectively to produce a cure. The smear then showed only large cornified epithelial cells, some with pyknotic nuclei and mucus. We have noticed the same condition in vaginal smears from patients with senile vaginitis whom we have treated with stilbestrol.

Within seventy-two to ninety-six hours the discharge changes in character, becoming thin, mucoid and white. The latter type of discharge persists throughout treatment, and complete disappearance of any type of discharge is noted within one or two weeks after discontinuance of treatment. The thick greenish yellow discharge definitely diminishes in amount within thirty-six to forty-eight hours.

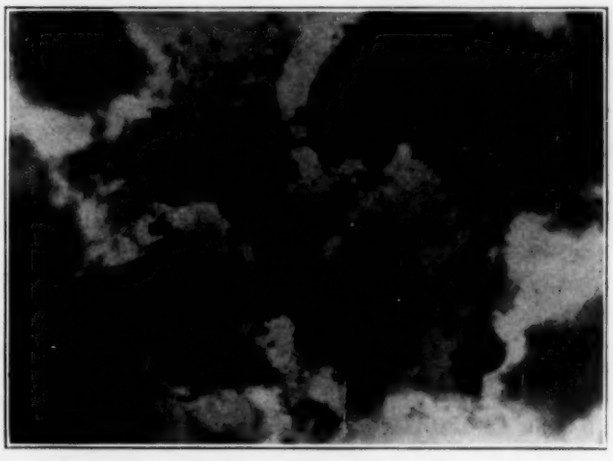

Fig. 6.—Smear of material taken from the vagina of an infant with gonorrheal vulvovaginitis fourteen days after cessation of treatment with diethylstilbestrol, showing cornified epithelial cells, immature epithelial cells and a large number of Doederlein and lactic acid bacilli. No pus cells or gram-negative intracellular diplococci are seen.

In the first few cases treated some nausea and vomiting were noted, but these symptoms have not been observed since we have administered the drug in milk. In no case did vaginal bleeding occur. In approximately two thirds of the cases a darkening of the nipple and areola occurred, together with slight painless enlarge-

ment of the breasts. In several cases pigmentation and painless enlargement of the vulva also was noted. In all cases these symptoms disappeared within three weeks of discontinuance of the drug.

We have observed eight of these cases for three months after discontinuance of therapy and there have been no recurrences in any of them. Seven cases have been observed for from two to three months. In the latter group two reinfections have occurred; in both cases a positive smear was obtained following two negative smears. Thorough investigation revealed that the two children slept in the same bed with a sister who proved to have gonorrheal vaginitis. Both patients were retreated with 20 mg. of stilbestrol and negative smears were obtained at the end of seven days. Both patients have had three negative smears following the second course of treatment. Their sisters also responded to therapy and are included in this series. Ten cases have been followed for from two weeks to two months after the discontinuance of therapy, and as yet there has been no evidence of recurrence.

Results of Treatment

Case	Gonococci	Age, Yrs.	Total Dose: Mg.	Total Dose: International Units	Duration of Treatment, Days	Recurrence	Number of Negative Smears	Previous Therapy
1	+	6	20	500,000	7	No	5	None
2	+	4	20	500,000	7	No	5	None
3	+	4	20	500,000	7	No	5	None
4	+	4	20	500,000	7	No	5	None
5	+	5	20	500,000	7	No	5	None
6	+	3	20	500,000	7	No	5	None
7	+	4	20	500,000	7	No	4	Gonococcic filtrate, prontosil tablets, 50 grains, theelin suppositories
8	+	6	20	500,000	7	No	5	Sulfanilamide, 285 grains
9	+	5	54	1,350,000	18	No	4	None
10	+	7	20	500,000	7	Yes*	2	None
11	+	11	20	500,000	7	No	4	None
12	+	4	20	500,000	7	No	2	None
13	+	4	20	500,000	7	No	3	Mercurochrome douche, sulfanilamide, 120 grains
14	+	1½	20	500,000	7	No	5	None
15	+	6	20	500,000	7	No	4	None
16	+	8	27	675,000	9	Yes*	2	None
17	+	3	27	675,000	9	No	5	None
18	+	9	20	500,000	7	No	4	None
19	+	2½	20	500,000	7	No	4	None
20	+	4	20	500,000	7	No	2	None
21	+	6	20	500,000	7	No	2	None
22	+	7	20	500,000	7	No	2	Theelin suppositories
23	+	4	20	500,000	7	No	2	None
24	+	8	20	500,000	7	No	2	None
25	+	12	20	500,000	7	No	2	None

* Indicates the two cases of reinfection or recurrence mentioned in the text.

COMMENT AND CONCLUSIONS

At the present time we are enthusiastic about the use and efficacy of diethylstilbestrol orally in the treatment of infant vulvovaginitis. The fact that this synthetic estrogen can be taken orally in milk eliminates the possibilities of the child's knowing that she is taking a drug as well as becoming "genital conscious," as might be the case when suppositories are used. Furthermore, the rapidity of cure, the absence of toxic or deleterious effects and the ease of administration as regards both the family and the physician lead us to believe that it is an ideal drug for the treatment of vulvovaginitis. The fact that diethylstilbestrol is synthetic and is required for such a short period makes it an economical method of treatment as compared to all previous biologic hormones.

Medical Arts Building.

HISTAMINASE IN THE TREATMENT OF HAY FEVER

EDMUND L. KEENEY, M.D.
BALTIMORE

Best [1] demonstrated, from the results of in vitro experiments, that a histamine inactivating substance existed. Later Best and McHenry [2] proved the specificity of this inactivating substance for histamine and accordingly suggested that the inactivating substance be known as histaminase. Histaminase has now become a popular drug for clinical experimentation in allergic diseases and allied disorders. The foundation for this clinical experimentation is based entirely on the hypothetical assumption that the allergic reaction is caused by the liberation of "H-substance" at the site of contact of antibody with antigen and on the probability that histaminase might inactivate the "H-substance," which is similar but not identical to histamine. Histaminase has been reported to be effective in the treatment of hay fever,[3] urticaria,[4] angioneurotic edema,[5] allergic eczema,[6] seborrheic eczema,[5] acne vulgaris,[7] Ménière's disease,[5] gastrointestinal allergy,[8] ulcerative colitis,[9] cold allergy [10] and serum sickness.[11] Recently histaminase (Winthrop) has been made commercially available and has been widely advertised as a drug effective in the treatment of allergic diseases.

It is extremely difficult to establish satisfactory evidence for the effectiveness of therapeutic agents in any of the so-called allergic diseases. This is due in part to the difficulty in determining the exact etiologic factors. Even when these factors can be determined they cannot always be controlled sufficiently to permit the formulation of satisfactory conclusions.

Seasonal hay fever is a typical disease of allergy and its etiology can be specifically determined. Furthermore, the symptoms of hay fever are in direct proportion to the amount of pollen in the atmosphere. The pollen concentration of the atmosphere can be easily determined by exposing specially prepared slides in various locations and counting the number of pollen grains in a measured area on the slides. Therefore the effectiveness of specific therapy in hay fever patients can be accurately determined by comparing the daily symptomatology records with the daily pollen counts. Since histaminase is advocated as a drug effective in controlling disorders of an allergic nature, it seemed that its benefits could be most accurately determined by its use in the treatment of patients with seasonal hay fever. Furthermore, since its effectiveness is sup-

From the Protein Clinic, Department of Medicine, the Johns Hopkins University School of Medicine and Hospital.

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10. Roth, Grace, and Horton, B. T.: Hypersensitiveness to Cold: Treatment with Histamine and Histaminase: Report of Case, Proc. Staff Meet., Mayo Clin. **12**: 129 (March 3) 1937. Baker, T. W.: Histaminase in the Treatment of Cold Allergy, J. A. M. A. **114**: 1059 (March 23) 1940.

11. Foshay, Lee, and Hagebusch, O. E.: Histaminase in Serum Sickness, J. A. M. A. **112**: 2398 (June 10) 1939. Moldenschardt.[5]

possibly due to its ability to inactivate histamine, it seemed important to observe, simultaneously, the effect of histaminase on the histamine reaction.

Fifteen patients known to have typical symptoms of hay fever beginning about the middle of August and lasting until the first frost were chosen for study. Each patient gave a typical positive intradermal reaction to a weak dilution of both giant and short ragweed extract. On Aug. 10, 1939, a record of daily pollen counts was started and was continued throughout the entire ragweed hay fever season. On August 23 the pollen concentration reached a height sufficient to produce typical symptoms of hay fever in all fifteen patients. Histaminase therapy was immediately begun and a daily symptom record was started for each patient. The histaminase was administered orally. The patients were first instructed to take 45 units of histaminase daily, but later the dose for six of the patients was increased to 60 and 75 units a day. After two days of treatment each patient reported improvement. However, the improvement could be accounted for by a sudden drop in the pollen counts following a heavy rainfall. Subsequently, with a rise in the pollen count the hay fever symptoms of all the patients reappeared and continued to become more severe as the pollen concentration continued to increase. Observations were conducted for a period of from ten to twenty-one days. All the patients continued to have hay fever during the course of study and any fluctuation in the symptoms that occurred was accounted for by a concomitant fluctuation in the pollen concentration of the atmosphere.

Before the onset of hay fever symptoms and, therefore, before the onset of histaminase therapy, each patient was tested intradermally with 0.001 mg., 0.0001 mg. and 0.00001 mg. of histamine acid phosphate. By this titration of the histamine tests, it was hoped to determine the smallest amount of histamine to which each patient would react. Any subsequent alteration in the cutaneous reaction that might occur as a result of histaminase therapy could then be accurately ascertained. The size of the reaction, i. e. the wheal and the erythema, was measured ten minutes after the test was made, and it was found that the greatest reactions occurred at the site of the largest doses. All the patients reacted to 0.001 mg. and 0.0001 mg., whereas only seven of the patients reacted to 0.00001 mg. of histamine acid phosphate. On the day histaminase therapy was terminated the histamine tests were repeated, and the results were compared with those previously noted. No appreciable change in the histamine reaction was observed in any of the fifteen patients.

SUMMARY

Histaminase was administered orally to fifteen patients with typical ragweed hay fever during the height of the 1939 ragweed season. Daily pollen counts were made and a daily symptom record was kept for each patient. Titrated intradermal tests with histamine acid phosphate were made before and after histaminase therapy.

Histaminase failed to give relief to any of the patients with ragweed hay fever. Any fluctuation in symptomatology that occurred could be accounted for by a concomitant fluctuation in the pollen concentration of the atmosphere.

Histaminase therapy did not alter the histamine reaction of any of the fifteen patients.

1114 St. Paul Street.

Clinical Notes, Suggestions and New Instruments

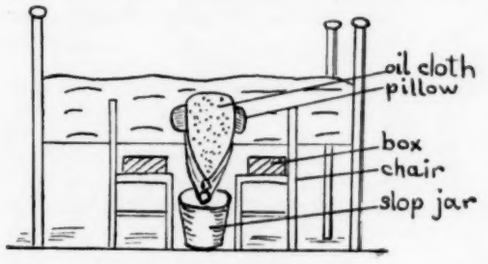
THE HOT DOUCHE

C. A. ANDERSON, M.D., BURLINGTON, N. C.

For some time I have used a method of applying heat in the treatment of such conditions as chronic pelvic infections and salpingitis which has proved most satisfactory. Probably some one can get a suggestion from the description of my method and render the hot douche more popular.

For a disease which requires months of daily treatments, office instruments for applying dry heat in the vagina are barely practicable for the wealthy and not practicable for the nullipara, and the cost renders these treatments prohibitive for the poor. Furthermore, the hot douche, although inexpensive, is probably a better method of conveying heat to the pelvic organs.

Maintaining the necessary uniform high temperature of the douche for from thirty to forty-five minutes I found impracticable, almost impossible, until I thought of controlling the flow with a Hoffman clamp. Now I use boiling water in the fountain syringe bag and close the clamp until the water cools in the tube and escapes from the vaginal tip at the desired temperature. If the douche is too hot, a slight turn of the clamp corrects it; if it is too cool, a slight release of the clamp raises



Materials for hot douche.

the temperature. I depend on the patient's feeling as to what temperature she can stand. Within a short time she begins stepping up the temperature. My patients tell me that one bag, or half a gallon, of boiling water lasts for from forty to fifty minutes.

Some of my failures have impressed on me the necessity of giving fully written instructions. I now read my patient typewritten instructions, explain them to her and let her take a copy similar to the ones here given. The simple little clamp solved a difficult problem.

WRITTEN INSTRUCTIONS FOR THE HOT DOUCHE

The prolonged hot douche is one of the more useful local treatments in diseases of women.

In certain cases it is very beneficial when properly taken.

When not properly taken it may do serious damage.

FOLLOW DIRECTIONS CLOSELY

Water .....

Add .....

For the first few days, while learning to control the flow, use water as warm as you can bear without scalding.

After you learn to control the flow, the temperature of the water in the bag may be gradually stepped up to boiling and allowed to cool in the tube to the desired temperature while it slowly trickles into the vagina.

Close the clamp until the water runs slowly and bend tubing when you wish to stop the flow.

Should the water in the tubing cool too much, a slight release of the clamp will raise the douche temperature.

Don't use water too hot until you learn to control the flow to a slow trickle.

It is heat and not the quantity of water that is desired.

The douche must last for from thirty to forty-five minutes.

If the douche is uncomfortable or painful, stop using it until you see your doctor.

DANGER!— —Use vaginal tube with holes in the side. The tube with a hole in the end (rectal tube) may cause serious trouble.

The bag should not be more than 2 to 3 feet above your body.

There are different modes of taking a douche. Use the mode you like.

1. Lie in the bath tub if the bathroom is not too cold in the winter or too hot and stuffy in the summer.

2. Lie in bed with douche pan—if you can do it without spilling water on the bed.

3. Place slop jar beside bed, a chair on each side of it and a box on each chair if necessary to raise to bed level, a hard pillow 6 inches from edge of bed, a piece of oilcloth (not rubber) over pillow and down into slop jar, the lower end having been rolled and fastened with a safety pin, forming a conical spout. The douche bag filled, the patient pulls up gown, sits down, falls back with the pillow under the small of her back, places her feet on the boxes and if the room is cold wraps her limbs. The water drops into the oilcloth cone. Warm water should be used in the bag until one gets the knack of controlling the flow by using the clamp and bending the tubing.

DOUCHE

Water.
Prescription:
Heat. If douche temperature falls, a slight release of clamp will raise the temperature.
Bag not more than 2 to 3 feet above your body.
Use vaginal tip.
Time, thirty to forty-five minutes.
The daily paper or a magazine helps to pass the time.

A NEW INSTRUMENT FOR SAFELY DECOMPRESSING THE CECUM DURING CECOSTOMY

ORVAR SWENSON, M.D., BOSTON

This new intestinal aspirator is designed to avoid the usual difficulties encountered when decompressing the obstructed colon prior to performing a cecostomy. If partial deflation can be done readily and safely, it often permits easy manipulation of the cecum and facilitates subsequent operative technic. If such drainage is attempted with a trocar, the instrument may become occluded before sufficient decompression is accomplished. When this occurs, removal of the trocar is necessary, with subsequent welling out of intestinal contents. Furthermore, insertion of a large trocar through a tense, thinned out intestinal wall may cause the bowel wall to split, permitting fecal material to ooze around the trocar.

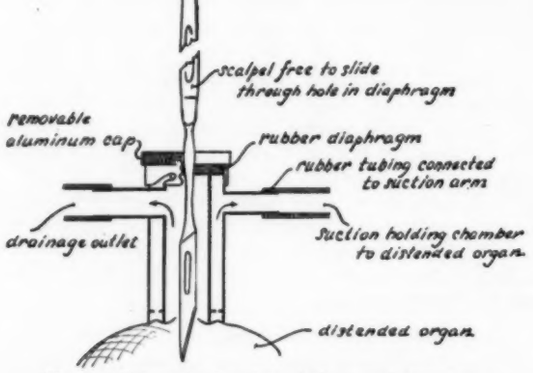

scalpel free to slide through hole in diaphragm
removable aluminum cap
rubber diaphragm
rubber tubing connected to suction arm
drainage outlet
suction holding chamber to distended organ
distended organ

Fig. 1.—Schematic drawing of the new instrument.

The instrument consists of a large double wall tube so arranged that, when negative pressure is applied, the space between the two walls acts as a suction cup and virtually seals the instrument to the viscus. The suction cup, as well as the large inner tube through which drainage takes place, is shown in the schematic drawing (fig. 1). Two suction lines are attached to the instrument: one is connected to the suction chamber which holds the instrument in place and the other to the inner aspirating tube through which evacuation takes place. A removable metal cap (shown in figure 2), equipped with a rubber diaphragm, facilitates cleaning. The rubber diaphragm illustrated in figure 3 enables retraction of the Bard-Parker knife (No. 7) within the aspirating chamber during the application of the instrument, as well as its manipulation in opening the intestine. This illustration also shows the perforated metal disk within the suction chamber, which prevents excessive invagination of the intestinal wall. This stabilizes the instrument during deflation and minimizes trauma to the bowel wall.

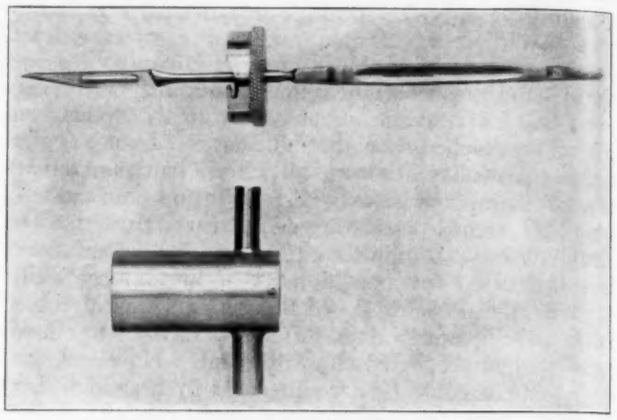


Fig. 2.—Removable metal cap which facilitates cleaning the instrument.

In figure 4 the instrument is assembled with the metal cap and knife in place.

The assembled instrument is placed at the point selected for drainage; suction is applied first to the suction chamber to fix the instrument to the viscus, and the knife is manipulated until the blade perforates the intestinal wall. The intestinal contents are evacuated through the central tube and passed out one side arm, negative pressure being applied if necessary. When the instrument is in place, considerable traction can be applied without dislodging it. Hence it can be used to draw the intestine out of the incision and obviates the use of traumatizing clamps. After adequate decompression and the delivery of the cecum through the incision, purse-string sutures are placed round the instrument before the latter is removed by relieving the suction. The surgical procedure of choice can be performed from this point on. A negative pressure of from 10 to 15 inches of water is adequate for the efficient operation of the instrument.

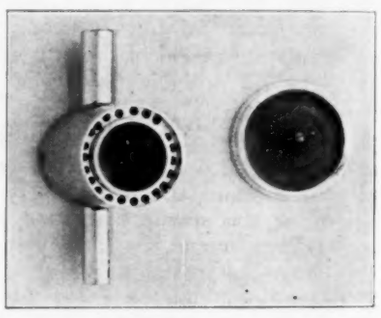


Fig. 3.—Rubber diaphragm and perforated metal disk within the suction chamber.

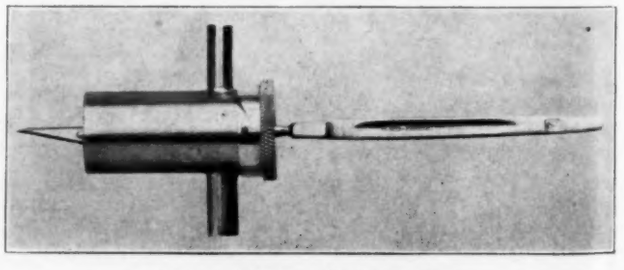


Fig. 4.—The assembled instrument.

There are other conditions necessitating drainage in which this evacuator can be used to advantage. Benign, malignant and parasitic cysts can be drained with this closed system. Markedly distended gallbladders can be drained. The proximal loop of distended intestine in intestinal atresia of the newborn can be decompressed in the manner described for intestinal obstruction.

721 Huntington Avenue.

From the Surgical Clinic of the Peter Bent Brigham Hospital.
Suggestions and help were given by Drs. F. C. Newton and Carl Walter and Mr. K. B. Smith aided in the mechanical construction of the instrument.

PEDUNCULATED FIBROLIPOMA OF THE VULVA

GEORGE DE TARNOWSKY, M.D., CHICAGO

While fibromas or fibrolipomas of the vulva are only comparatively rare and their removal presents a rather simple problem in plastic surgery, the following case seems worthy of report:

REPORT OF CASE

History.—Miss R. A. aged 21 was referred to me by Dr. A. J. Schwartz, Nov. 16, 1939, for the removal of a pedunculated tumor arising from the right labium majus. Some two years before the patient—unusually shy and modest—had begun to notice that she was—to quote her own words—"getting fat between her thighs." She gave up swimming on this account but otherwise continued her social and athletic activities, including dancing. The tumor continued to grow and elongate until it reached halfway down her thigh. Some two months prior to her hospital admission the lower margin of the tumor began to ulcerate. This so alarmed the patient that, for the first time, she confided in her mother and allowed the latter to examine her external genitalia.

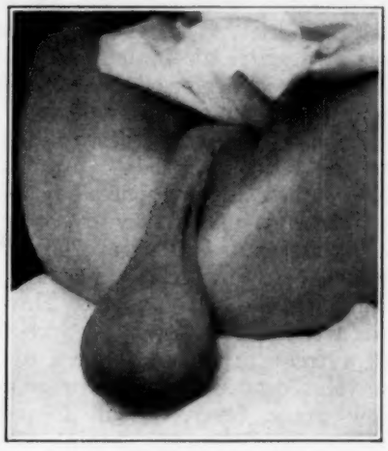


Fig. 1.—Pedunculated fibrolipoma of the vulva.

On examination a pedunculated tumor, 32 cm. long, with an ulcerated apex, was disclosed. The mucosa of the right labium majus was dragged down a distance of 10 cm. The upper half of the pedicle was lymphedematous while the lower portion gave one a doughy feeling suggesting a lipoma rather than a soft fibroma. Three ulcerated areas bled easily on palpation. No other anomalies were noted; routine laboratory reports were all negative.

Under cyclopropane anesthesia the right labium majus was restored to its normal size and shape. The mucosa was dissected free from the tumor and a sufficient flap of skin left for plastic repair prior to removal of the entire pedicle.

Pathologic Report.—The tumor was large, soft and pedunculated and weighed 1,270 Gm. It measured 21 by 17 by 7 cm. Over its apex were three ulcerated areas from 1 to 3 cm. in diameter. Microscopically the central portion of the tumor was made up of both fibrous and fatty tissues. Lymphedema was present throughout the proximal half of the mass. Some areas were very cellular but no definite evidence of sarcoma was noted.

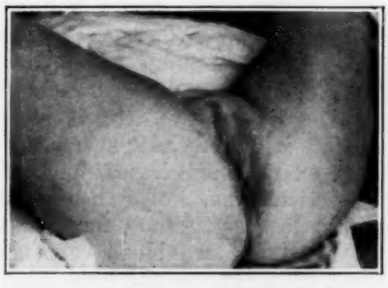


Fig. 2.—Appearance immediately after removal of tumor.

During the past month two similar but sessile vulvar fibromas have come to our service. A woman aged 60 who was sent to the hospital for removal of a carcinoma of the fundus uteri had a tumor of the left labium majus the size of a large grapefruit which, she stated, was congenital. Her married daughter had a similar growth on her right labium majus.

30 North Michigan Avenue.

Case presented before the Chicago Gynecological Society, Jan. 19, 1940.

Special Article

CONFERENCES ON THERAPY

THE TREATMENT OF BLOOD DISORDERS

IV. ROENTGEN THERAPY

NOTE.—*These are actual reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with the collaboration of other departments. The questions and discussions involve participation by members of the staff of the college and hospital, students and visitors.*

DR. PAUL REZNIKOFF: Dr. Forkner starts the discussion this morning on the use of roentgen therapy in disorders of the blood and blood-forming organs.

DR. CLAUDE E. FORKNER: There are only a few diseases of the blood in which x-rays are used for treatment. Among these are leukemia, the lymphoblastoma group of diseases including Hodgkin's disease, lymphosarcoma, reticulum cell sarcoma, small round cell sarcoma, and polycythemia. The thrombocytopenic purpuras and granulocytopenia will be discussed briefly, but I feel that roentgen treatment as a rule is not indicated for either of these.

A variety of x-ray technics has been applied in the treatment of leukemia. Nicholas Senn, when he first found that x-rays were effective in leukemia in 1903, thought that he had cured the disease. He used a crude apparatus. Since that time many voltages have been used, varying from a very few kilovolts to over 1,000 kilovolts. Filters of a dozen different sorts and thicknesses have been used. Skin focus distances ranging from a few centimeters to several meters have been employed, and sizes of fields of irradiation from a few square centimeters to that of the total body surface. Varying milliamperages have been used. With all these, good results have been obtained, but I think perhaps not very much better results than was the case in the original method of Senn with a crude apparatus. In leukemia it is paradoxical that the disease is most effectively treated by agents which are known experimentally to induce the disease. The agents are arsenic, x-rays, radium and benzene (benzol). All may be effective in bringing about a more easily transmissible leukemia. In animals they may actually induce a higher incidence of leukemia than occurs in control groups. There is a good deal of evidence that even in man irradiation in some cases is a factor in inducing leukemia. That may be the reason why leukemia cannot be cured with any of these agents—because the agents used to cure the disease also tend to make the patient more susceptible.

What are the indications for the use of x-rays or radium for patients with leukemia or with one of the lymphoblastoma group of diseases? First one must view the whole patient. A high leukocyte count, the presence of an enlarged spleen, enlarged lymph nodes or any other single factor should not be considered alone in the decision as to whether or not the patient needs treatment. The occurrence of symptoms is especially important as pointing to the need for treatment. There often are general symptoms such as fatigue, low grade fever and loss of weight. Symptoms are sometimes brought about by the enlarged organs, such as enlarged lymph nodes, perhaps in the mediastinum, or a large spleen producing pain, a dragging sensation or per-

haps gastrointestinal disturbances. Symptoms may be brought about by the increased metabolic rate, such as excessive perspiration, rapid loss of weight and fatigue. There may be symptoms due to progressive anemia, which may at times be severe, or a rapidly increasing white blood cell count with increasing numbers of immature cells. All of these may point toward the probability that the patient may need specific treatment with x-rays, radium or some other agent, whichever you choose. At times itching, particularly in the lymphogenous group of leukemias, even though the patient may be well in other respects, may indicate treatment. Patients can go along with a leukocyte count of 100,000 or 200,000 per cubic millimeter for long periods of time and still feel quite well. We use treatment in leukemia as a palliative measure, knowing well that no cure can be accomplished. Since x-rays are a palliative measure they should not be employed when the patient is without symptoms. However, at times one can anticipate that a patient will have symptoms in the near future, and then one may forestall an imminent relapse.

It is important also to know the indications for stopping treatment in disorders such as leukemia and lymphoblastoma. It happens too frequently that patients are overtreated with x-rays and radium. Perhaps the best treatment is that which will bring about satisfactory recession of symptoms and nothing more than that; in other words, the least treatment which is effective in relieving the symptoms is the proper treatment in leukemia; this applies also in the lymphoblastoma group of diseases. Some patients are extraordinarily sensitive to x-rays or radium; others are more resistant, so that one should at first treat the patient cautiously and observe the reaction. Some patients exhibit a delayed effect and several weeks may pass before the maximum effect occurs. If one does not allow for this, one may obviously overtreat the patient. It is important to observe the symptoms during the initial series of treatments. These may serve as a guide to how that patient is going to react subsequently. Patients should have frequent physical examinations and examination of the blood before each roentgen treatment or before each small series of treatments in order to make sure that the blood or the patient himself has not been affected adversely by too much treatment. As soon as the leukocyte count begins to show an abrupt fall in leukemia, it is time to spread the treatments a little further apart. You cannot say at the beginning that you are going to give a patient 400, 600 or 1,000 roentgens. You must judge that as you go along and spread your treatment as the count begins to drop abruptly. When the count reaches 30,000 or 20,000 or thereabouts, you must consider the possibility of discontinuing treatment altogether for a time. If you do not do this, dangerous leukopenia may supervene. Thrombocytopenia may develop, with striking hemorrhagic manifestations, or anemia may increase. The indications then for resuming treatment after it has been stopped are similar to those at the beginning, except that the patient must be observed at frequent intervals, perhaps of not more than six or eight weeks, in order to detect changes which might indicate an impending relapse, which may be forestalled. These indications are a rapid increase in white blood cells, a persistent increase or high level of the basal metabolic rate, the presence in the blood of increasing numbers of very immature cells, and the symptoms associated with enlargement of the organs.

What are the contraindications for the treatment of leukemia? Some say that acute leukemia should not be treated with x-rays. There is no other treatment which is effective except perhaps transfusions, which are only palliative, the effect lasting for a few days. I think that it is justifiable to treat acute leukemia with x-rays, but one must expect little from such treatment. Occasionally if so treated the disease will be converted into subacute or chronic forms. If there are large numbers of blast cells in the blood, as in a terminal stage of chronic leukemia or in acute leukemia, many feel that treatment should not be given. I believe that this is no contraindication for treatment but that one can expect relatively little from it. Some patients will respond favorably. Leukopenia is often regarded as a contraindication for the treatment of leukemia. I do not consider it so unless the leukopenia has been brought about as a result of treatment with arsenic, benzene (benzol), x-rays or radium. Spontaneous leukopenia in leukemia is not a contraindication for treatment, and in some cases the treatment will cause the leukocyte count to rise rather than fall. Thrombocytopenia and severe anemia are also not contraindications for the treatment of leukemia unless they are brought about as a result of treatment. If they are brought about merely as a result of the disease, they frequently will respond satisfactorily to treatment. However, one must gage the treatment cautiously in such instances. Fever also is a frequent accompaniment of leukemia and is not a valid contraindication for treatment, particularly a low grade fever. It will frequently disappear after treatment. Pregnancy, I think, although it rarely occurs in leukemia, is a pretty strong indication against treatment with x-rays or radium because of the untoward effects on the fetus.

The benefits of treatment may also be observed in the effects on the enlarged lymph nodes and in statistics relating to the duration of life. In a case of leukemia with enlarged mediastinal glands, marked reduction in their size may occur within a few days after treatment. The question Does treatment prolong the life of a patient with leukemia or lymphoblastoma? frequently comes up for discussion. Dr. Minot's study tended to show that it does not. Certainly in isolated instances it does, but not in the great majority of cases, although the patient is made comfortable and is enabled to have a much more satisfactory life. The observations of others are essentially the same as those of Minot.

In polycythemia vera it is important to give patients more roentgen treatment than is usually required in leukemia. The point of application of the x-rays is often different, in that patients with polycythemia vera may be treated over the bones more effectively than patients with leukemia; also spray irradiation is perhaps more effective and less dangerous in polycythemia than it is in leukemia. Polycythemic patients are treated only if they have symptoms, the purpose being to lower the production of red blood cells and hemoglobin by the effect of x-rays on the bone marrow cells.

METHODS OF TREATMENT

DR. REZNIKOFF: The second phase, the x-ray aspects, will be taken up by Dr. Carty.

DR. JOHN R. CARTY: X-rays and radium are used simply for palliation. Owing to the fact that it will be necessary to use x-rays over a period of time, particular care should be taken to avoid injury to the skin. Too vigorous treatment should not be attempted,

particularly in single doses. With use of multiple small doses one can watch the patient more carefully, and one is not likely to produce leukopenia.

I agree with Dr. Forkner that the question of leukocyte count alone should not be taken as a guide to roentgen therapy, as there are patients with a leukocyte count of 70,000 or even 100,000 cells who are quite comfortable, and if the cells are reduced below that by x-rays they feel worse. Similarly, a patient with 60,000 or 70,000 cells might be very uncomfortable and made to feel better by treatment.

In general, two methods of treatment are employed. With the first, treatment is applied to a limited area directly over the bone and spleen in myelogenous leukemia, and over the enlarged lymph nodes in lymphatic leukemia. With the second method the entire body is treated by means of very small doses by the spray method as mentioned by Dr. Forkner. While the dose per se is small the body area is large, and the absorption of x-rays may be considerable. I believe that the latter method is particularly useful when the patient is unusually radiosensitive, but I am not as enthusiastic as are some people about that method because I feel it is hard on the marrow. I believe that 200 kilovolt peak therapy with filtration of from 1 to 2 mm. of copper is preferable to medium wave or intermediate therapy with less filtration simply because the skin seems to endure this type of radiation better, and the more the skin can be conserved, the better.

One must exercise great care in treating children with leukemia as I have occasionally seen violent reactions following small doses.

After the first series of treatments the radiation needs of the leukemic patient can generally be determined. It is important to determine this not only as a guide for future doses but also for its prognostic significance.

With lymphoblastoma, Hodgkin's disease and lymphosarcoma, while the outlook is desperate, occasional instances of authentic cure are reported, and I believe that the results obtained by x-rays have improved considerably with the improvement of technic.

A constant check on the condition of the mediastinum is important because enlargement may occur there without any symptoms whatever. Another important point is that the treatment of the mediastinum, when there are pressure symptoms, must be given cautiously with the patient hospitalized during the first two or three treatments; otherwise difficulty may be encountered because if the patient is radiosensitive the lymph nodes will swell before decreasing in size.

Patients who are moribund or who have extreme leukopenia or anemia are usually best not treated. If, however, this occurs early in the disease I believe that very cautious treatments may be given, for a rise of the leukocytes may occasionally occur, as Dr. Forkner has stated.

In polycythemia vera we again use x-rays as a palliative, not a curative, agent. Local or general body exposure (spray) may be given. The long and flat bones, including the sternum, are treated. Careful check on the blood should be maintained. It is well to discontinue treatment if the white cell count goes below 5,000.

EFFECT OF IRRADIATION

DR. REZNIKOFF: The pathology will be presented by Dr. Furth.

DR. JACOB FURTH: The therapeutic application of x-rays in leukemia and allied diseases followed empirical observations of Pusey (1902) and Senn (1903) on patients and the experimental studies of Heinecke (1904) on animals that indicated the high susceptibility of blood cells to x-rays. Nuclear degeneration in lymphocytes is evident within a few hours after irradiation, increasing in severity during successive days. A transient initial rise in white blood cells is followed by leukopenia reaching its depth several days after irradiation, the severity of the leukopenia depending on the dose. The effect of a given dose is the same regardless of intensity, the product of intensity and time being constant, as expressed by the Bunsen-Roscoe law. This does not hold when feeble intensities are used. Different types of radiation act the same way, the quantity of radiating energy absorbed being the main factor that determines the effect of the radiation. Among blood cells the lymphocytes are the most susceptible to x-rays but myelogenic and erythrogenic cells are likewise readily destroyed, so that severe general irradiation is followed by aplasia of bone marrow and atrophy of lymph nodes and spleen. Monocytes seem to be the most resistant type of leukocytes.

The degree of sensitivity to x-rays is characteristic for each cell type. In general, the radiosensitivity of cells seems to be directly related to their reproductive capacity and inversely related to the degree of differentiation, as stated by Bergonie and Tribondeau (1906). X-ray susceptibility of the same cell type varies with stages of cell development, the peak of susceptibility being during mitosis. The difference may be as much as eightfold (Mottram). Leukemic cells are as a rule more susceptible to x-rays than normal cells but the difference is quantitative and overlapping. For instance, 10 per cent of cells of one type may be killed by a dose of x-rays which may be only one tenth of that needed to kill the more resistant 10 per cent of the same population (Scott). This is in complete agreement with our experimental studies on leukemic blood cells. When general irradiation is given, there seems to be no dose that will kill all malignant cells without producing injury fatal to the host. The radiosensitivity of different malignant cells of the same type varies and cannot be predicted with certainty. I shall modify slightly Dr. Forkner's remarks by saying that there is a variation in susceptibility of different malignant strains of the same cell type (e. g. leukemic lymphocytes), but animal experiments indicate that the sensitivity of the same strain of malignant cells is constant in different hosts.

X-ray death is not immediate. Though fatally wounded, the cells may migrate and exhibit other evidence of life for hours or days following irradiation, a phenomenon referred to as delayed lethal effect. The incubation period of this delayed lethal effect depends on the dose. Ignoring this factor in roentgen therapy might result in overdosage.

X-rays lower resistance of the host to infections. Irradiated animals may succumb to infection by otherwise harmless micro-organisms of which they are carriers. Prophylaxis of latent infections should therefore precede therapeutic irradiation.

X-rays injure cells by direct effect; hence the beam of radiation is best directed to masses of neoplastic cells. The usual sarcoma and carcinoma as a rule are not definitely influenced by indirect irradiation, but there may be an indirect effect in leukemia, though this, if present, is slight and variable. This indirect effect has not been well analyzed, and almost every affirmative observation can be matched with a contradictory report.

Nevertheless the numerous theories proposed to explain the assumed indirect effect, such as those postulating necrohormones, toxins or enzymes liberated from the tissues, or circulating electrons, are widely quoted. A general effect may follow irradiation, but I do not know of any experimental work indicating the production of a specific x-ray change by indirect irradiation, for example, atrophy of bone marrow or of spleen. The whole question of indirect irradiation effect requires reconsideration. The indirect local effect is better known. Injury to the soil of the neoplastic cells, for instance obliteration of vessels, doubtless retards neoplastic growth.

It is frequently stated that small doses of x-rays have a stimulating effect. This, if present, is slight and transient. Prolonged leukocytosis, lymphocytosis or erythremia has never been produced by x-rays. The x-rays are useful to destroy an excess of white cells in leukemia and erythrogenic foci in polycythemia but useless to stimulate hypofunctioning blood-forming organs. Neoplasia by irradiation occurring after a latent period of from ten to thirty years is a different process. The opinion that leukemic cells are stimulated to maturation by x-rays is not supported by experimental studies.

The subject of radiobiology is as fascinating as it is important in medicine. Its many aspects are admirably reviewed in the "Handbuch der gesamten. Stralenheilkunde," edited by Lazarus. A similar encyclopedia of basic knowledge is the three volume set of Duggar on the biologic effect of radiation. The two small volumes of Colwell and Russ "Radium, X-Rays and the Living Cell" and "X-Ray and Radium Injuries" are good reading and reference books. A good review of the pertinent medical literature can be found in Forkner's book "Leukemia and Allied Disorders" and in Selling and Osgood's section in Downey's "Handbook of Hematology." Among the recent individual contributions on the biologic effect of x-rays and radium, Scott's monograph in the British Medical Research Council Series (1937) is outstanding.

DISCUSSION OF QUESTIONS

STUDENT: Is it always necessary to hospitalize a patient when giving roentgen therapy for leukemia?

DR. FORKNER: No, but I think it is advisable for the initial series of treatments because one is dealing with a number of unknown factors. Once a series of treatments has been given, one knows the patient much better.

STUDENT: How often does one check the blood of such an ambulatory patient?

DR. FORKNER: About every six weeks or twelve weeks if the patient is doing well. More frequent visits are necessary if he is not doing well. A great deal depends on how ill the patient is and in what stage the disease is.

DR. REZNIKOFF: Our custom here is to check the blood within a week after the cessation of the series of treatments. Then if the patient is normal we have him come back within at least a month.

STUDENT: According to the literature there are so-called cures with roentgen therapy, pretty definite cures. Dose that occur only in early cases?

DR. CARTY: There have been a few reported cures by x-rays where there has been definite histologic evidence of lymphoblastoma. Those are early cases.

DR. FORKNER: I know of only two cases of leukemia in the literature in which a cure has followed treatment with x-rays, and those were both early cases of chloroma. I think that none of the other cases that have been reported, of which there are a fair number, will stand critical judgment. It should be pointed out that the diagnosis of leukemia is sometimes extraordinarily difficult and that it may easily be confused with a number of other disorders.

DR. MCKEEN CATTELL: Then one cannot say with absolute certainty that the recoveries have been due to the x-rays?

DR. FORKNER: One of those mentioned was associated with excision of a chloromatous tumor in which the blood had only a few myelocytes. The other patient had some myeloblasts in the blood and there were a number of tumors scattered about. A biopsy was taken for confirmation of diagnosis. The patients, both children, were alive and well two and one-half years later, which I think is adequate time for one to say that cure had resulted. I have never seen an untreated chloroma last that long.

STUDENT: I should like to ask Dr. Carty if anything is known definitely about the mechanism of the x-ray reactions which are observed after therapy. I refer to nausea and vomiting and sometimes vague abdominal pains.

DR. CARTY: There are many theories. We really do not know much about it. The theories are, first, that the effect is psychic; second, that there is a change in the composition of the blood; third, that there is some noxious gas like nitrous oxide generated by the machine; and fourth, that there is some breakdown product which poisons the patient.

I have seen patients who have had radiation become nauseated entirely on the basis of psychic reaction. One patient was taken to the treatment room early in the morning, and the machine had not been running. I put that patient under the machine and had it make a noise without giving off any x-rays, and the patient promptly vomited after the lapse of the usual time. Undoubtedly some reactions are based on complex physiologic-chemical effects, and not much is known about them. Many remedies are employed for these reactions, and that fact alone is an indication that no one therapeutic measure is worth much.

STUDENT: Has there been any experience in this hospital with the use of vitamin B complex in the treatment of nausea and vomiting following irradiation?

DR. CARTY: We have tried it, but not with startling results. Liver extract did seem to do some good in certain cases. A high vitamin intake, including orange juice and grapefruit juice, is sometimes helpful, and also to treat the patient on an empty stomach, but I know of no therapeutic measure that is universally effective.

DR. FORKNER: These patients have fewer untoward effects following treatment if they are on a low protein and a high carbohydrate diet because there is much protein destruction and elimination of its metabolites as a result of the x-rays. Therefore, if possible, for a few days prior to treatment and for a week or so afterward a low protein, high carbohydrate diet may be given, sometimes with benefit.

DR. REZNIKOFF: Dr. Forkner, will you tell us something about roentgen therapy in thrombocytopenic purpura and granulocytopenia?

DR. FORKNER: There have been several series of studies on thrombocytopenic purpura and granulocytopenia, so called, in which it has been thought that small stimulating doses of x-rays applied to the bones have been effective in inducing remissions, but other series of cases have not verified this. It seems to me unlikely that irradiation would be effective in that condition or in agranulocytic angina. Concerning patients who have thrombocytopenic purpura haemorrhagica it has been said that irradiation of the spleen will accomplish in a measure what splenectomy might accomplish and can be applied to patients whose spleens it is for one reason or another impossible to take out. I think this method is definitely secondary to splenectomy and should not be used if splenectomy can be done fairly safely. When it cannot, I think it is justifiable to try to induce a remission by intensive treatment.

DR. REZNIKOFF: I would go even further and say that in the case of granulocytopenia it is a dangerous procedure. It is my impression that, while these cases show a temporary effect as demonstrated by a response of the white blood cells, they subsequently show a marked depression, below levels seen before the treatment was started.

DR. HARRY GOLD: Would we be safe in assuming that the therapeutic effects of x-rays in these various blood diseases that have been mentioned result from the destruction of cells and that there is no other effect of x-rays on any underlying process responsible for the disease?

DR. FURTH: The direct destructive effect of x-rays is something definite. It can be demonstrated by both in vivo and in vitro experiments. In experimental leukemia, destruction of leukemic cells explains the prolongation of life. The indirect effect is not well understood but it seems to be present. There is some regression of the size of the lymph nodes, and the leukocyte count is reduced beyond what one would expect from irradiating the blood leukocytes circulating within the therapeutic field during the time of irradiation. The number of blood cells destroyed by direct irradiation is enormous but the indirect effect is very uncertain; I believe that it is slight and its mechanism not understood.

DR. REZNIKOFF: In the cases of polycythemia, spray irradiation, which would be indirect irradiation to some extent, has given us the most prolonged remissions. We have patients who have had spray radiations of from 25 to 50 roentgens with a maximum of six treatments who have gone for as long as a year, and most more than forty weeks, without change in the blood count, whereas previously with acetylphenylhydrazine or spot radiation over the bone marrow and spleen we have rarely been able to keep them more than a few months at the most. Dr. Carty, you were not enthusiastic about spray radiation. Did you mean to include polycythemia?

DR. CARTY: No, I referred particularly to leukemia.

DR. REZNIKOFF: Have you anything to say about grenz radiation, the so-called Buckie radiation which penetrates only 3 mm.?

DR. CARTY: I have had no experience with it myself, but Buckie claims that a reduction in red cells is produced. If so, that would tend, it seems to me, to be in favor of some indirect mechanism.

In this connection I should like to ask Dr. Furth if he is familiar with some work that is being done on irradiated blood in hopeless cancer cases in which the blood is removed from the patient, irradiated and then returned to the body.

DR. FURTH: I am not certain that a specific effect has been demonstrated by means of injections of irradiated blood. Dr. Forkner might be more familiar with the literature. I am impressed by the lack of controls in these experiments.

DR. FORKNER: I think the results in most of the cases that have been recorded are equivocal. Most of the cases studied have been complicated by other factors which might well account for the remission. The original work, I think, was done by Capps and Smith in 1907 and then was repeated by Szilard and more recently by a number of other workers. There is still disagreement, but I think the general feeling is that it does not work, and any effect described has been very transitory.

One has to be cautious about treating the bone marrow or the bones of patients with leukemia. That does not apply in polycythemia, but in leukemia when treating the bones one is much more likely to induce a more severe anemia. Instead of the red blood cells promptly coming up as the white blood cells come down, the red blood cells are apt to drop further, and the effect is less beneficial; also the thrombocytes are sensitive to radiation, particularly direct radiation. I think one is more apt to produce thrombocytopenia in treating the bones than in treating the spleen or the chest.

DR. CATTELL: Under what circumstances is radium the treatment of choice for blood conditions?

DR. CARTY: I think it is simply a matter of convenience. Of course, the radiation is quite different in wavelength; the gamma radiation of radium is different from radiation of 200 kilovolt peak. Practically speaking, the effects can be considered the same.

DR. FURTH: In the treatment of localized masses of neoplastic blood cells, as in the treatment of cancer, radium is excellent and might in some instances be preferred, but in treating a diffuse systemic disease like leukemia x-rays seem preferable.

DR. FORKNER: Yet one can apply radium to the spleen in leukemia and get a satisfactory effect, a general effect, on the bone marrow.

STUDENT: Considering the fact that there may be an indirect factor, such as mentioned by Dr. Furth, is there any reason why the blood of a polycythemic patient who has been given roentgen treatment should not be used for transfusion?

DR. REZNIKOFF: I see no reason why the blood from a polycythemic patient should not be used for transfusions. We have used it and have never regretted its use, but I don't quite understand why the polycythemic patient need be irradiated first.

STUDENT: I meant, was there anything wrong in using the blood of such a person?

DR. REZNIKOFF: I think the effect of the x-rays would disappear in a relatively short time. The amount of x-rays the recipient would have would be negligible.

DR. CARTY: We have used the term "stimulating dose." I think it is misleading. X-rays probably do not produce an effect comparable to the stimulation of a gland, speaking from the physiologic standpoint. The so-called stimulating effect is probably in the nature of a minimal injury.

DR. FORKNER: I think that the term came from the original work of Murphy, Nakahara and Strum, in which they found that small doses of x-rays applied to animals induced an increased production of lymphocytes in the germinal centers of lymph nodes and an increase in the number of lymphocytes in the blood, but I think their results were also interpreted as being secondary to a minimal destruction or a minimal damage to the cells.

STUDENT: I want to ask about the use of radioactivized elements in the treatment of leukemia, with the radioactivity lasting three or four days. Has that been used at all?

DR. FORKNER: Lawrence and his associates in California have treated patients with various disorders, particularly leukemia, with irradiated phosphorus. They have found that by irradiating phosphorus and then giving patients this to drink they can induce a satisfactory remission, which is fairly prolonged in its effect. When the effects wear off all the patient has to do is to take another drink and he again gets a satisfactory effect. The treatment has not been carried over a long enough time to know just how permanently useful it is going to be. I think the results are promising. It may turn out to be the most effective form of treatment of leukemia by irradiation.

DR. REZNIKOFF: Dr. Harrison Martland has given rats radioactive liquids and has shown how dangerous, or rather how effective, the radioactive material can be in causing depression of the bone marrow. One of the difficulties, as he points out, is that when a remedy is applied locally the dosage can be controlled and stopped, whereas if an excess is taken and is stored there is no means of getting rid of it.

DR. FORKNER: I think that applies to radium and to the thorium group of preparations, but this irradiated phosphorus has a half life of only fourteen days.

DR. CARTY: That brings up the opaque material colloidal thorium dioxide. I have discussed the use of that substance with Dr. Martland; he is strongly against it and feels that later on there may be some bad end results from its use.

DR. GOLD: There is a great deal of exploitation of radioactive waters and radioactive baths.

DR. FORKNER: There is danger in their use. A preparation called Radiothor a few years ago was sold widely for the treatment of arthritis and various other disorders. I had that substance appraised at the Rockefeller Institute, and it was found to be definitely radioactive and we considered the recommended doses dangerous.

SUMMARY

DR. REZNIKOFF: Dr. Gold, will you summarize?

DR. GOLD: In today's conference we have considered x-ray radiation in the therapy of blood diseases, its indications, the method of application, some of the mechanisms involved in its action, the dosage and the dangers.

The effects of radium and x-rays are similar and the choice of one over the other seems, from the discussion, to be chiefly a matter of convenience.

Some of the fundamental facts concerning the response of blood cells to radiation help one to understand better the problems and difficulties involved in its use. Blood cells are very susceptible to radiation, some more than others. The most sensitive cells are the lymphocytes, and the most resistant the monocytes. Leukemic cells are more susceptible than normal ones. There are marked differences in sensitiveness among cells of the same type depending on various factors, as the stage of their development, and this applies to both normal and leukemic cells. There is so much overlapping in the sensitiveness that it is impossible to find the dose of radiation which will destroy all the abnormal cells without causing serious destruction of normal ones as well.

The long latent period after the application of radiation before effects appear is a source of danger and must be taken into account to avoid overdosage.

The effect of radiation appears to be chiefly that of cellular injury, and the so-called stimulating effect of small doses may be merely a matter of minimal injury. So-called stimulating effects of small doses are slight and transient and of doubtful value in hypofunctional states of blood-forming organs such as thrombocytopenic purpura and granulocytopenia.

Although there is some indication that radiation may produce some indirect effects, the main effects appear to be exerted by direct destructive action on the abnormal cells, suggesting the desirability of applying radiation directly to the pathologic tissues.

Various technics for the application of radiation therapy were discussed. The effective dose is the amount of energy absorbed by the tissues, and it depends on the product of the intensity of the irradiation and its duration. Since patients differ in their sensitiveness, dosage, as in the case of a drug, needs to be established for each case individually.

Some of the dangers of irradiation were discussed, particularly the effect of overdosage in depressing unduly the various elements of the bone marrow. Minor reactions such as nausea and vomiting, and methods for their control, which were also considered, appear sometimes to be due to psychic factors.

In leukemia, the indications for treatment are such symptoms as fatigue, fever, loss of weight, pain due to pressure, and itching. The treatment reduces the size of enlarged glands. Occasionally it prolongs life and, in many, symptoms are relieved. At times roentgen treatment may delay the appearance of symptoms or prevent relapse. In leukemia the radiation is more safely applied to the spleen or the chest than to the bones, because of the danger of reducing the number of thrombocytes and promoting severe anemia. The view has been expressed that there are no contraindications for roentgen treatment of leukemia when it is necessary by reason of the presence of symptoms, with the exception of leukopenia, thrombocytopenia, or anemia when these have been brought about by previous roentgen treatment. Pregnancy is a contraindication because of the effect of radiation on the fetus.

In polycythemia vera, more treatment is usually necessary than in leukemia. The object of the therapy is to depress the bone marrow cells enough to reduce the number of circulating red blood cells. The view has been expressed that this condition responds better to spray radiation than to spot radiation over the bones and the spleen.

In purpura haemorrhagica, intensive treatment of the spleen is sometimes effective but should be used only when for some reason splenectomy is inadvisable.

It has been emphasized that in leukemia and in polycythemia vera the prime indication for radiation therapy is not merely the existence of the disease but the presence of symptoms. Radiation therapy is, in these conditions only palliative. It rarely, if ever, occurs.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

HOWARD A. CARTER, Secretary.

GENERAL ELECTRIC GALVANIC GENERATOR ACCEPTABLE

Manufacturer: General Electric X-Ray Corporation, 2012 Jackson Boulevard, Chicago.

The General Electric Galvanic Generator is used in muscle and nerve stimulation, common ion transfer therapy and electrolysis. It is a portable unit 15 inches wide, 11 inches deep and 6¼ inches high, and the shipping weight is 50 pounds. Accessories include two rubber covered electrode cords with friction grip terminals and one spongiopilene dispersive pad with a metal back 6 by 8 inches in size. Models are equipped for operation on 105/125 volt, 50/60 cycles alternating current, 210/250 volt, 50/60 cycles alternating current and 105/125 volt direct current.

General Electric Galvanic Generator.

The apparatus contains a full wave vacuum tube rectifier and a filter system which converts alternating current into a smooth "ripple free" direct current. The current to the patient is controlled by a potentiometer type intensity regulator so that the current will be uniformly varied from zero to maximum. The transformer is air cooled, and safety against electrical shock is assured by insulation of the secondary from the primary winding. A two scale milliammeter (0-20-200) with a selector switch on the meter permits choice of either scale. A line switch and polarity switch are also supplied.

When direct current is used, a rectifying and filtering system is not provided. However, a series of relays insure that the grounded side of the direct current system is connected to the patient.

The firm submitted as physical evidence an oscillogram demonstrating that the rectified direct current is ripple free.

The unit was submitted to a qualified investigator for clinical use and he reports that it was satisfactory for use in common ion transfer and muscle stimulation.

The Council voted to accept the General Electric Galvanic Generator for inclusion on the Council's list of accepted devices.

BURDICK SWD-52 SHORT WAVE DIATHERMY ACCEPTABLE

Manufacturer: Burdick Corporation, Milton, Wis.

The Burdick SWD-52 is a portable short wave diathermy unit designed for medical and minor surgical diathermy. The unit is similar to the previously accepted SWD-50 (THE JOURNAL, Aug. 20, 1938, p. 712) except that a cable with its output circuit and power control rheostat have been provided. The SWD-50 has been accepted for pad technic. Standard accessories include three condenser pads and two cuff electrodes of different sizes and one twelve foot cable. Surgical accessories and a lower cabinet to support the unit are optional.

Burdick SWD-52 Short Wave Diathermy.

A two-tube push-pull self-rectified circuit is utilized with loose inductive coupling to the patient's electrodes. The wavelength is approximately 15 meters. The patient's circuit is turned by a wide range, variable resonance control. Three patient's outlets are provided, one for use with large pads and average spacing, one for small pads with thicker spacing and one for the cable. Radio interference is minimized by steel construction, insulation and an inductance capacity filter in the line supply.

The firm claims that the unit provides a 300 watt output as measured by a lamp load, photoelectric cell and wattmeter, using an input of 800 watts. The final transformer temperature after a two hour run at full load was within the limits of safety.

Since the cuff circuit is the same as that used in the SWD-50 unit, the firm did not resubmit deep heating tests for this technic. No evidence was submitted for the pad technic. In order to demonstrate the production of heat deep within human tissue by the unit with the coil technic, the firm submitted six tests. Four turns of the cable were made around the thigh and a five-eighths inch felt spacing was used. Power was applied only up to the patient's skin heat tolerance. Following are the average temperatures received in degrees F.:

	Deep Muscle	Oral
Initial	97.8	98.2
Final	106.6	98.5

The apparatus was used clinically by the Council and was found to be satisfactory. It was efficient in tissue heating with cable and cuff technics. The external construction of the machine is stable.

The Council voted to accept the Burdick SWD-52 Short Wave Diathermy Unit for inclusion on the Council's list of accepted devices.

Council on Foods

AT THE REQUEST OF THE COUNCIL ON FOODS, THE BOARD OF TRUSTEES GRANTED THE COUNCIL AN APPROPRIATION FOR THE PURPOSE OF MAKING A STUDY OF THE PROBLEM OF LEAD IN FOODS. THE EXPERIMENTAL WORK WAS DONE IN THE LABORATORY OF THE DEPARTMENT OF PHYSIOLOGY AND PHARMACOLOGY, NORTHWESTERN UNIVERSITY SCHOOL OF MEDICINE, THROUGH THE COURTESY OF DR. A. C. IVY. THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT, REPRESENTING A PART OF THE WORK THAT HAS BEEN DONE UNDER THIS SPECIAL GRANT.

FRANKLIN C. BING, Secretary.

EFFECT OF CALCIUM AND PHOSPHORUS ON RETENTION OF LEAD BY GROWING ORGANISM

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AND
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CHICAGO

Recent studies employing sensitive analytic methods have shown that traces of lead are present in practically all common foods which have been examined. Even minute amounts of lead may be detrimental to health if they accumulate in the body. To draw conclusions about the significance of the traces of lead that are ingested under ordinary conditions would require careful study and more data than now are available. The problem of lead in foods has been the subject of extensive reviews by Calvery [1] and Monier-Williams.[2] On the basis of evidence now available, lead must be considered a potential hazard and all possible contamination of food products with lead should be guarded against. The Council on Foods [3] has repeatedly emphasized this point of view.

This report, which is part of an experimental study made possible by a special grant of the Board of Trustees of the American Medical Association to the Council on Foods, presents the results obtained in an investigation of the influence of calcium and phosphorus in the diet on the storage of lead in the growing organ-

1. Calvery, H. O.: Chronic Effects of Ingested Lead and Arsenic: A Review and Correlation, J. A. M. A. **111**: 1722-1728 (Nov. 5) 1938.
2. Monier-Williams, G. W.: Lead in Foods, Reports on Public Health and Medical Subjects, No. 88, London, Ministry of Health, 1938.
3. Lead in Foods, in Report of Annual Meeting of the Council on Foods, J. A. M. A. **113**: 680-681 (Aug. 19) 1939.

ism. It is becoming recognized that the composition of the diet has an important effect on the retention of lead. The data reported herein support the view that increased amounts of calcium in the diet diminish the amount of lead which is stored in the body. The data also show that the amount of phosphate in the diet has no effect on the storage of lead.

EXPERIMENTS

Procedure.—Albino rats which had been reared in the laboratory were selected as experimental animals. At the age of 3 weeks the rats were weaned and fed for one week on Sherman's diet B,[4] which consists of ground wheat and dried milk with 1.3 per cent of sodium chloride. The animals then were divided into groups, placed in cages, each containing three or four animals, and fed the experimental diets. Each group contained approximately equal numbers of males and females and representatives from different litters. The animals were selected also so that the average weights of the rats in each group were approximately equal.

The experiments were planned to study the effect of both the level and ratio of dietary calcium and phosphorus on the retention of lead. The diets used were patterned after those devised by Shohl.[5] The basal diet consisted of 79 per cent of yellow corn meal, 20 per cent of wheat gluten flour and 1 per cent of sodium chloride. The calcium, phosphorus and lead contents of the basal diet were determined. To each kilogram of the mixture was added 100 mg. of basic lead acetate, except for the diets fed groups J and K. Appropriate amounts of calcium carbonate or potassium phosphate, or both, were added to the basal diet so as to produce diets having the composition in terms of calcium and phosphorus shown in table 1. The rats were supplied distilled water from pyrex containers. Ordinary wire cages with false bottoms were used because it was not considered essential to devise a lead-free cage for the purpose of these experiments.

TABLE 1.—*Composition of the Diets*

Group	Calcium Percentage	Phosphorus Percentage	Ratio Ca:P	Added Lead Mg. Pb per Kg.
A	2.0	0.5	4.0	100
B	1.0	0.5	2.0	100
C	0.5	0.5	1.0	100
D	0.25	0.5	0.5	100
E	0.12	0.5	0.25	100
F	0.25	0.12	2.0	100
G	2.0	1.00	2.0	100
H	0.5	0.25	2.0	100
J	2.0	1.00	2.0	0
K	0.25	0.12	2.0	0

The basal diet consisted of yellow corn meal 79 per cent, wheat gluten flour 20 per cent and sodium chloride 1 per cent. It contained approximately 0.02 per cent of calcium, 0.10 per cent of phosphorus and 1.82 mg. of lead per kilogram by analysis. The calcium and phosphorus contents of the diet were adjusted by addition of calcium carbonate and dihydrogen potassium phosphate. Lead was added as basic lead acetate.

The animals were allowed to consume the diets freely for three weeks, when the experiment was terminated. The rats in groups J and K, which received no added lead in their food, were given daily by intraperitoneal injection 100 micrograms of lead in the form of a solution of lead acetate during the same period. At the end of the experiment roentgenograms were taken of each animal. The animals then were killed under ether anesthesia and, with precautions to avoid lead contamination, the liver, kidneys and femurs were dissected from each animal. The femurs of each animal were dried, ashed in an electric muffle furnace at a temperature which did not exceed 500 C. and analyzed for lead. In order to obtain sufficient material for analysis, it was necessary to pool the livers or kidneys of from two to four animals. These tissues were dried, ashed and likewise analyzed for lead.

TABLE 2.—*Lead Content of the Femurs*

Group	No of Rats	Dietary: Calcium, %	Dietary: Phosphorus, %	Average Composition of Both Femurs: Dry Weight, Gm.	Ashed Weight, Gm.	Ash in Dried Bones, %	Micrograms of Lead per Gm. Dried Bone ± S. D.
A	9	2.0	0.5	0.223	0.103	46.2	75 ± 32
G	10	2.0	1.0	0.206	0.095	46.1	64 ± 21
D	9	0.25	0.5	0.186	0.075	40.3	223 ± 45
F	10	0.25	0.12	0.196	0.082	41.8	243 ± 46

Lead was determined by means of the dithizone method described by Clifford and Wichman [6] with some of the modifications suggested by Laug.[7] A titration-extraction procedure was used.[8] The method, which need not be described, was studied until confidence could be had in the results. Duplicate determinations checked closely. Small amounts of lead added to evaporated milk could be recovered with a maximum variation of about plus or minus 10 per cent.

OBSERVATIONS

The animals in the various groups consumed their food in approximately equal amounts. Growth was poor, although none of the animals lost weight. The roentgenograms showed no evidence of a lead line. The bones appeared to be normal in all groups, except that the animals fed diets which were low in calcium had definitely poor bones. This was especially noticeable in groups D, E and F, which were given either 0.12 or 0.25 per cent calcium. No evidence of rickets, which might have been expected in the animals in groups D, E and F, was found in any of the animals. It is quite possible that the inclusion of lead in the diet affects the metabolism of calcium and phosphorus, even if present in the small amounts used in these experiments.

Data on the lead content of the femurs are included in chart 1 and table 2. In the chart are shown the values obtained in the first experiments, where four animals were contained in each group. The data show a marked diminution in the lead content of the femurs as the calcium content of the diet is increased. The animals in group E, for example, which were fed a diet containing 0.12 per cent calcium, had an average of 307 micrograms of lead per gram of dried femur, whereas the animals in group A, fed the diet containing 2.0 per cent calcium, had an average of 43 micrograms of lead per gram of dried femur. The data provided in the

4. Sherman, H. C., and Muhlfield, Marie: Growth and Reproduction upon Simplified Food Supply: II. Influence of Food upon Mother and Young During the Lactation Period, J. Biol. Chem. **53**: 41-47 (July) 1922.

5. Shohl, A. T.: Rickets in Rats: XV. The Effect of Low Calcium-High Phosphorus Diets at Various Levels and Ratios upon the Production of Rickets and Tetany, J. Nutrition **11**: 275-291 (March) 1936.

6. Clifford, P. A., and Wichman, H. J.: Dithizone Methods for the Determination of Lead, J. A. Off. Agri. Chem. **19**: 130-156, 1936.

7. Laug, E. P.: Application of the Dithizone Method to the Determination of Lead in Biological Materials, J. A. Off. Agri. Chem. **31**: 481-487, 1938.

8. Wilkins, E. S.; Willoughby, C. E.; Kraemer, E. O., and Smith, F. L.: Determination of Minute Amounts of Lead in Biological Materials, Indust. & Engin. Chem. (Anal. Ed.) **7**: 33-36 (Jan.) 1935.

chart also show that the level of phosphorus in the diet has no effect on the lead content of the femurs. The dried bones of groups A and G, for example, both contained 43 micrograms of lead per gram. Both groups received 2.0 per cent calcium in the diet, but the diet fed group G had 1.0 per cent of phosphorus, while the diet fed group A had 0.5 per cent. An even more striking example of the lack of any effect of phosphorus is made evident from a comparison of the results obtained with groups D and F, both of which received diets containing 0.25 per cent of calcium, but in the diet fed to group D there was 0.5 per cent of phosphorus and, in the diet fed to group F, 0.12 per cent of phosphorus. The average amount of lead, expressed as micrograms per gram of dried femur, was 210 in group D and 219 in group F.

In table 2 there is provided a summary of the analyses of the bones of four groups of animals from the data recorded in chart 1 and also from data obtained with additional animals. The later experiments duplicated the earlier series. The amount of lead in the femurs, however, was on the average about 40 micrograms per gram higher in all the groups in the second series. This may have been due to differences in the lead content of the animals at the beginning of the experiment or perhaps to seasonal variations in metabolism. All the data were averaged and the results treated statistically. The table provides the calculated standard deviations of the mean lead content of the femurs in each of four groups of animals. The data show conclusively that the deposition of lead in the bones of growing animals is retarded by increasing the calcium content of the diet. The data also show conclusively

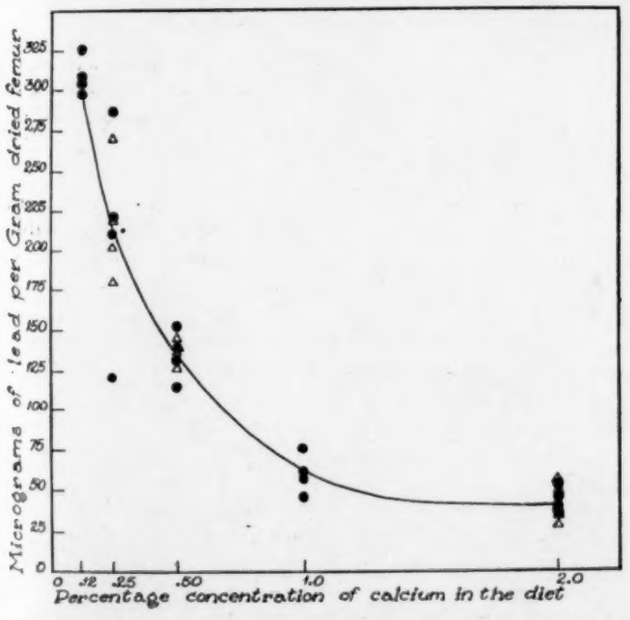

Chart 1.—Decrease in lead content of bone with increasing amounts of calcium in the diet. The solid dots represent values for individual animals receiving 0.5 per cent phosphorus in the diet and different amounts of calcium. The hollow triangles represent values obtained in individual animals receiving diets in which the calcium-phosphorus ratio was made equal to 2.0. The curved line passes through the average values of all the animals. The lack of effect of dietary phosphorus is apparent.

that the phosphorus content of the diet has no significant effect on the amount of lead deposited in the bones. The table provides the average values for the dried weight, ashed weight and percentage of ashed weight in the dried femurs. These data show that the diets which produced heavier bones containing a greater amount of ash produced bones which contained the least amount of lead. The data also verify in general the observations of Shohl [5] on the effect of different ratios and levels of calcium and phosphorus on the composition of the bones, although a direct comparison cannot be made because we did not extract the dried bones with alcohol and ether before ashing.

The data on the lead content of the livers and kidneys are summarized in chart 2. Because of the necessity of pooling the samples, the data are not as extensive as in the case of the bones. The lead content of the kidneys reflects the lead content of the bones, being highest in animals having the highest amounts of lead in the bones and lowest in the animals which had the lowest amounts of lead in the bones.

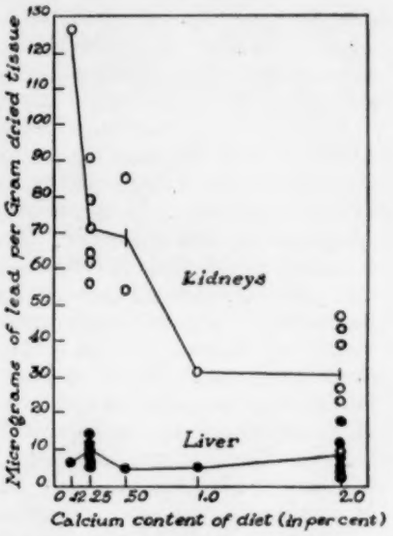

Chart 2.—Relationship between the lead content of the kidneys and liver and the calcium content of the diet. Each hollow dot represents one analysis, on two or more animals, of the lead content of the kidneys. Each solid dot represents one analysis of the lead content of the liver, representing tissue from three or four animals. The lead content of the kidneys decreases with increasing amounts of calcium in the diet; the content of lead in the liver remains relatively constant.

The amount of lead deposited in the kidneys, expressed as micrograms of the element per gram of dried tissue, in general was less than the amount of lead deposited in the bones. The amount of lead deposited in the liver was much smaller. Further, the amount did not vary regularly with the calcium content of the diet.

TABLE 3.—*Effect of Injected Lead on Lead Content of Tissues of Rats Fed Varying Amounts of Calcium and Phosphorus*

Group	No. of Rats	Diet: Calcium %	Diet: Phosphorus %	Average Lead Content of Tissues in Micrograms per Gm. Dried Tissue: Femurs	Kidneys	Liver
K	9	0.25	0.12	499 ± 66	147	45
J	10	2.00	1.00	400 ± 64	121	83

The data obtained in the injection experiments are summarized in table 3. The animals in group K received a diet containing 0.25 per cent of calcium and 0.12 per cent of phosphorus. In group J the animals received a diet containing 2.0 per cent of calcium and 1.0 per cent of phosphorus. As shown in the table, the average amount of lead deposited in the bones was about 25 per cent higher in the animals receiving the lower amount of calcium; but the data were variable and the difference between the two means, 499 plus or minus 66 and 400 plus or minus 64, both expressed as micrograms of lead per gram of dried bone, plus or minus the standard deviation of the mean, is not considered significant. Likewise the data in table 3 show that the

amount of lead in the kidneys of the two groups of animals was of the same order of magnitude. The animals receiving the diet containing the lower concentration of calcium had less lead in the liver than the animals receiving the higher amount of calcium, but there were not sufficient data to establish any significance to the difference. It was concluded that when a solution of a lead salt is injected intraperitoneally there is no essential difference in the lead content of the femurs, kidneys or liver. It is clear that the inhibitory effect of calcium on the retention of lead by the growing organism is primarily concerned with reactions that take place in the alimentary tract.

Calvery, Laug and Morris [9] showed with dogs that a suitable concentration of calcium in the diet tends to prevent a high storage of lead in the bones and soft tissues of the body. It also retarded the onset of violent symptoms of lead poisoning. The calcium contents of the diets which they fed to dogs were 0.28, 0.13 and 0.10 per cent. Grant, Calvery, Laug and Morris [10] also reported an extensive study with rats on the influence of dietary calcium and phosphorus on the storage and toxicity of lead. They fed two basal diets, one containing 0.13 per cent of calcium and 0.44 per cent of phosphorus, and the other containing 0.53 per cent of calcium and 0.22 per cent of phosphorus. Different amounts of lead arsenate were added to the basal diets. It was found that the animals which received a low calcium diet and 512 mg. of lead per kilogram of feed did not thrive, as shown by the condition of the animals and poor growth. The animals were maintained on each diet for an average period of ninety-three days; the animals surviving were killed and the femurs, brains, livers and kidneys were analyzed for lead and arsenic. Large differences in the lead content of the bones and soft tissues were observed in the different groups of animals, the larger amounts of lead being found in the tissues of the animals receiving the lower amount of calcium. Thus with the low calcium diet there was on an average 189 micrograms of lead per gram of dried femur, and with the relatively high calcium diet there was on an average only about 28 micrograms of lead per gram of dried femur.

The results reported by Calvery and his collaborators conflicted with some of the prevailing views on the relationship of calcium and phosphorus to the metabolism of lead. In their classic investigation of lead poisoning, Aub and his collaborators [11] not only established the principles for the treatment of this condition but also demonstrated a relationship between the metabolism of lead and that of calcium. Their conclusions may be stated in their own frequently quoted words: "It has been shown by chemical studies with animals that an analogy exists in the metabolism of calcium and lead. Various decalcifying agents have been shown to increase lead output. Conversely, the conditions favoring calcium retention also tend to a complete storage of lead in the bones." In another publication they wrote "Inasmuch as lead metabolism runs parallel to that of calcium, the lead problem becomes essentially a problem of calcium metabolism."

While there are many data to support Aub's original contention that the elimination of lead which is already present in the bones is dependent on decalcifying processes, there are few data to support the conclusion that conditions which favor the retention of calcium tend also to favor the storage of lead in the bones. Indeed, the data reported here conflict with the latter view.[12] Further, Aub, Robb and Rossmeisl [13] fed cats a meat diet or a meat diet plus milk and gave lead carbonate by insufflation, subsequently analyzed the long bones for lead and found no significant differences in the two groups. It is interesting to note that in our experiments in which lead was given by the parenteral route no difference could be found in the lead content of the tissues of animals receiving diets markedly different in calcium content.

In drawing conclusions about the effect of diet on the metabolism of lead, it is important to make clear whether one is dealing with lead already stored in the bones or with lead that is in the diet which is fed. Much confusion has resulted from failure to state the conditions under which the conclusions have been drawn. For this reason it is necessary to describe in some detail the data available in the literature, as they pertain to the results of the present study.

In 1932 Shelling [14] reported some experiments with rats which indicated that the phosphate content of the diet was of more importance than the calcium content. He fed young rats an adequate diet to which was added 1.5 per cent of basic lead carbonate plus calcium carbonate, disodium phosphate or basic magnesium carbonate. Vitamin D in the form of viosterol in oil was given to some of the animals. As judged by growth, appearance and longevity, the rats receiving the added magnesium carbonate fared worst, and those receiving calcium carbonate fared almost as poorly. The animals receiving the stock diet with added lead carbonate thrived a little better; but the rats fed the same diet with the addition of sodium phosphate did best of all. The rats receiving vitamin D died much earlier than their mates which did not receive the vitamin, except for the animals receiving additions of phosphate, all of which thrived irrespective of vitamin D. No analyses of the lead content of the animals were made.

An extension of Shelling's work was made by Sobel and Kramer and their collaborators, and their most recent report summarizes the earlier data.[15] They fed young rats diets which had 0.025 per cent of calcium and 0.262 per cent of phosphorus, 1.02 per cent of calcium and 0.262 per cent of phosphorus, and 0.025 per cent of calcium and 0.857 per cent of phosphorus. The lead content of each diet was from 0.80 to 0.82 per cent. After five days on the experimental diet half of the rats in each of the three groups were given

9. Calvery, H. O.; Laug, E. P., and Morris, H. J.: The Chronic Effects on Dogs of Feeding Diets Containing Lead Acetate, Lead Arsenate and Arsenic Trioxide in Varying Concentrations, J. Pharmacol. & Exper. Therap. **64**: 364-387 (Dec.) 1938.

10. Grant, R. L.; Calvery, H. O.; Laug, E. P., and Morris, H. J.: The Influence of Calcium and Phosphorus on the Storage and Toxicity of Lead and Arsenic, J. Pharmacol. & Exper. Therap. **64**: 446-457 (Dec.) 1938.

11. Aub, J. C.; Fairhall, L. T.; Minot, Annie S., and Reznikoff, Paul: Lead Poisoning, Medicine Monographs 7, Baltimore, Williams & Wilkins Company, 1926.

12. Lederer, L. G.: The Effects of Various Levels and Ratios of Dietary Calcium and Phosphorus on the Retention of Lead by the Growing Organism, in Summaries of Doctoral Dissertations, Northwestern University, 1939, p. 208.

13. Aub, J. C.; Robb, G. P., and Rossmeisl, Elsie: The Significance of the Bone Trabeculae in the Treatment of Lead Poisoning, Am. J. Pub. Health **22**: 825-830 (Aug.) 1932.

14. Shelling, D. H.: Effect of Dietary Calcium and Phosphorus on Toxicity of Lead in the Rat: Rationale of Phosphate Therapy, Proc. Soc. Exper. Biol. & Med. **30**: 248-254, 1932.

15. Sobel, A. E.; Yuska, Henry; Peters, D. D., and Kramer, Benjamin: The Biochemical Behavior of Lead: I. Influence of Calcium, Phosphorus and Vitamin D on Lead in Blood and Bone, J. Biol. Chem. **132**: 239-265 (Jan.) 1940.

vitamin D in the form of viosterol in corn oil. At the end of twenty-nine days the animals were killed and the blood and femurs were analyzed for lead. In each instance the animals receiving vitamin D had more lead in the bones than the controls receiving the same diet but no vitamin D. The bone ash in the animals fed vitamin D likewise was higher but still much below normal for rats of the same age. The highest amount of bone ash was found in the group receiving 1.02 per cent of calcium plus vitamin D, and this amounted to only 37.9 per cent of the fat-free dried bone. The high calcium diet resulted in a lower amount of lead in the bones. The high phosphate diet resulted in a still lower amount of lead in the bones.

The lead content of the diets used by these investigators amounted to approximately 8 milliequivalents of lead per hundred grams, about eighty times the concentration of lead in our diets. The calcium content of the diets used by Sobel and others was either 1.25 or 51 milliequivalents per hundred grams, the phosphorus either 25 or 83 milliequivalents per hundred grams. It would thus seem that these authors were observing the effects of lead on the metabolism of calcium and phosphorus in addition to the effects of calcium and phosphorus on the metabolism of lead. With these diets they confirmed Shelling's observations that the addition of phosphate to the basal diet had a beneficial effect. Because five of their six experimental groups had less ash in the femurs than control animals at the age of twenty-three days, the authors concluded that lead may be deposited in the bone while calcium is being withdrawn. They did not discuss the possibility of decalcification of the shaft of the bone and calcification of the epiphysis, which probably is what took place. It is known that lead is deposited in the trabeculae. Further, the groups receiving vitamin D uniformly had more bone ash and more lead than their corresponding controls. If attention is focused on these experimental animals, it equally well could be concluded that their results are in harmony with the view that conditions which favor the deposition of calcium salts in the bone also favor the deposition of lead.

Tompsett [16] recently reported that he fed adult mice two different diets containing different amounts of fat and supplying relatively high or low calcium intakes. To these rations he added supplements of lead. In experiments of two weeks' duration he found much less lead in the bodies of mice receiving the so-called high calcium diet. He suggested as an explanation of the protective effect of high calcium diets that the reaction of the intestinal contents is made more alkaline and in this manner decreases the solubility of lead, which is assumed to be present as lead phosphate. This explanation of the beneficial effect of calcium in the diet is unsupported by direct experimental evidence. In addition, Tompsett fed mice added fat and also vitamin D in the form of cod liver oil and reported no effect on lead storage from either. The failure to note any effect of vitamin D on lead stored in the body may be ascribed to the fact that he used adult animals, whereas Sobel and his collaborators used young, growing animals.

There is evidence that lead phosphate is not the salt which would be precipitated from a solution containing lead, phosphate, calcium, chloride and various other substances which may be found in the intestinal contents and in the blood serum. Jowett [17] found that the precipitate which is formed when lead salts are added to blood serum is a complex lead salt containing phosphate, calcium and chloride. Because the exact nature of the insoluble salt of lead is not known, the calculations of Sobel and his collaborators about the solubility of lead phosphate, which they offered as an explanation of their observations, certainly are premature.

Our experiments show that the beneficial effect of calcium in the diet in retarding the retention of lead by the body is due to reactions which occur in the intestinal tract. Presumably lead is rendered insoluble and the extent of this reaction is governed under ordinary conditions by the concentration of calcium and not by the concentration of phosphate. The calcium in the present experiments was provided in the form of calcium carbonate and it is possible that some lead is precipitated in the intestinal tract as the carbonate, either alone or in the form of some complex salt. It has been shown [18] that the lead of potable water can be quantitatively removed by passing the water through a mixture of calcium carbonate and magnesium oxide. Further experiments therefore will be necessary to show whether or not the calcium of milk is as useful as the calcium of calcium carbonate in retarding the accumulation of lead in the body. At the present time the evidence that milk would be of value is largely presumptive.

Dietary factors other than calcium and possibly vitamin D may be important in preventing the storage of lead. Shields and his collaborators [19] have shown that the inclusion of considerable amounts of apple in the diet results in the retention of appreciably less lead in the bodies of experimental rats. These authors suggested that the pectic substances in the apple may be responsible for the beneficial effect. They observed that a solution of pectic acid, prepared from pectin by mild alkaline hydrolysis followed by acidification with acetic acid, precipitates even small amounts of lead. Other dietary substances such as fat [20] may be concerned with the biochemical behavior of lead in the body. The prevention of absorption by dietary means would thus appear to be worthy of further study as a means of prophylaxis against the accumulation of lead in the body.

CONCLUSIONS

It is concluded from the present studies made with young albino rats that the amount of lead stored in the body is diminished by the addition of calcium carbonate to the diet. The addition of phosphate has no significant effect. In harmony with other reports lead is found to be stored chiefly in the bones, and the kidneys are found to contain relatively high concentrations as compared with the liver. The beneficial effect of calcium appears to be due to the prevention of absorption of lead from the intestinal tract, because the calcium content of the diet has no significant effect on the retention of lead which is administered by injection into the abdominal cavity.

16. Tompsett, S. L.: The Influence of Certain Constituents of the Diet on the Absorption of Lead from the Alimentary Tract, Biochem. J. **33**: 1237-1240 (Aug.) 1939.

17. Jowett, Maurice: The Reactions of Lead Compounds with Serum and Serum-Models, Biochem. J. **26**: 2108-2122, 1932.

18. Ingleson, H.: Determination of Lead in Drinking Water, Analyst **63**: 546-560 (Aug.) 1938.

19. Shields, J. B.; Mitchell, H. H., and Ruth, W. A.: The Effect of Apple Constituents on the Retention by Growing Rats of Lead Contained in Spray Residues, J. Nutrition **18**: 87-97 (July) 1939.

20. Weyrauch, F., and Necke, A.: Zur Frage der Milch-, Schleimsuppen- und Fettprophylaxe bei der Bleivergiftung, Ztschr. f. Hyg. u. Infektionskr. **114**: 629-636 (Feb.) 1933.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 22, 1940

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.

2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.

3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.

4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.

5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.

6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.

7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.

8. Expansion of public health and medical services consistent with the American system of democracy.

THE 1940 SESSION

New York City became the medical capital of the world early in June when the first advance guard of physicians began to register at the various hotels for attendance on a number of meetings of special societies which usually are held just before the annual session of the American Medical Association. With each day more and more physicians, accompanied frequently by members of their families, poured into the city. By Friday June 14, 12,864 physicians had registered their attendance on the annual session, exceeding by more than 2,500 the largest number ever previously registered in any session. The largest previously was the Atlantic City session at which the Canadian physicians also were in attendance. Physicians filled the lobbies of the hotels, thronged the scientific exhibits, were interviewed by one exhibitor after another in the Technical Exhibits, collected vast amounts of information and samples, applauded the Governor and the Mayor of New York at the opening session, participated in innumerable social events, theater parties and radio broadcasts, and found time for an occasional hour at the World's Fair. Replete with information and entertainment and somewhat exhausted by the drive necessary to get the most out of a meeting of this kind, they began to depart toward the end of the week, expressing universal satisfaction in what they had gained at the meeting.

The problems that concerned the House of Delegates at this annual session were solved with a perspicacity and unanimity that were in themselves remarkable and yet indicative of the manner in which the medical profession is united today in solving its problems. Most significant was unquestionably the action taken with regard to medical preparedness. The Committee on Medical Preparedness was formed, including ten members of the House of Delegates and five officials of the Association, and is already in action trying to do all that the medical profession can do to place our country in a position to resist any aggression that may come upon us. Elsewhere in this issue appears a new section of THE JOURNAL entitled "Medical Preparedness," in which it is proposed from week to week to publish the actions of this committee and also such official announcements as may come from the Surgeon Generals of the United States Army, Navy and Public Health Service as well as from any other governmental agency requiring medical cooperation for medical preparedness. The minutes of the session as they are published in THE JOURNAL, will make clear the important actions taken by the House of Delegates.

The new officers elected include the President-Elect, Dr. Frank H. Lahey (described in an editorial comment in this issue), and a new trustee to succeed the late Dr. Charles Benjamin Wright; namely, Dr. William F. Braasch of Rochester, Minn. San Francisco was chosen as the place of the annual session of 1943.

On four floors of the Grand Central Palace the largest technical and scientific exhibits ever assembled were besieged by great numbers of physicians. Many of the technical exhibitors had prepared new installations of equipment especially for this occasion. A sympathetic gesture was the decision at the end of the session to present surplus supplies to the French War Relief. The Scientific Exhibits subsidized by the American Medical Association served a most useful purpose in graduate education; the individual exhibits surpassed in quality and in interest any similar collection available at any time in this country. Many a visitor to the annual session feels that he gains the utmost in graduate education from these exhibits.

The opening meeting of the annual session was held in the Grand Ballroom of the Waldorf-Astoria. This magnificent hall was packed to the doors and hundreds stood throughout the meeting. The Doctors' Symphony Orchestra, composed of physicians and related professional workers of New York, gave a demonstration of musical competence equal to that of many of the best professional aggregations. The Governor of New York

brought the audience to its feet with a stirring appeal for medical cooperation in the maintenance of our democracy and told the assembled physicians that they were the ones to solve the problems of medical care for the American people. The Mayor of New York City, who had flown from Ottawa specifically for this occasion, told of his admiration for medical service and invited the physicians in attendance to visit the medical institutions of New York. The general sessions of the Association, the round-table conferences and all the meetings of the various sections were heavily attended, and the discussions were exceptional.

In the arrangements for the annual session of 1940 the Medical Society of the County of New York and the Medical Society of the State of New York gave complete and valuable cooperation. The radio program from this annual session was the largest ever attempted, including numerous broadcasts from local stations as well as on the national chains. The newspapers of New York, overwhelmed by the news of the war, nevertheless gave pages on some days and many columns on others to the news of the annual session. No doubt the success of this great session will stimulate the authorities of New York City, the hotel owners and the Convention Bureau to set in motion the necessary steps to provide that great metropolis with a convention hall adequate to the needs of an annual session of this type. In attendance, in quality and in every other way, it set a mark for scientific meetings.

THE FETAL FUNCTION OF THE THYROID

The fetal function of the endocrine glands has presented interesting problems for the physiologists. Certainly these glands do not remain inactive, particularly toward the end of gestation, only to assume full function suddenly at the moment of the infant's expulsion from the uterus. A number of water soluble substances may pass from the mother to the child, and vice versa. Maternal hormones reach the fetus, as demonstrated by the phenomenon of swollen mammary glands and the presence of so-called witch's milk in newborn infants of both sexes. The permeability of the placenta to at least some of the fetal hormones appears evident from several experiments. Carlson and Ginsburg [1] removed the pancreas from pregnant bitches that were almost at term and found that diabetes failed to develop until after delivery but occurred soon after. Apparently the fetal pancreas supplied the needed insulin. Pack and Barber [2] injected insulin into the fetuses of goats in utero and produced a decrease in the maternal blood sugar, thus demonstrating the permeability of the placenta to hormone transmission. Randall and Rynearson [3] found that newborn infants of diabetic mothers presented not infrequently at the time of birth symptoms of hypoglycemia. They state that the metabolic condition in a pregnant woman with diabetes improves somewhat in the second half of pregnancy, presumably because of the activity of the fetal islands of Langerhans. After birth the child's pancreas continues to hypersecrete with resulting hypoglycemia. Ujiie [4] found that partial removal in rabbits of the parathyroids or the thyroid resulted in an increase of the residual nitrogen and the amino acid fractions of blood nitrogen. These values persisted when the animals became pregnant during the first half of pregnancy but diminished in the course of the second half and returned to almost the values obtained before extirpation. This was interpreted by assuming that the accumulation of noncoagulable nitrogen in the blood took place as the result of extirpation and altered metabolism, and that during the second half of pregnancy the fetal parathyroids and the fetal thyroid supplied the mother with these hormones. These experiments seem to establish the permeability of the placenta to the parathyroid and thyroid hormones.

A striking clinical demonstration of the function of the fetal thyroid is offered by a clinical case reported by Zondek.[5] He had the rare opportunity of following the development of idiopathic myxedema in a female patient for some years. The woman became pregnant after two years' treatment with thyroxine and gave birth to a normal child. During the first three months of pregnancy, symptoms did not appear; only the heart showed slight dilatation of the left ventricle, flattening of the PT deflection and lowering of the RS complex as the first indications of a beginning relapse. These changes became apparent during treatment with thyroxine and suggested that the pregnancy had an injurious effect on the maternal thyroid gland. At this point treatment with thyroxine was discontinued but contrary to expectation further symptoms did not appear up to the period after delivery. In the ninth month the basal metabolic rate was —1 per cent as compared with —29 per cent before the pregnancy and before the patient was given thyroxine. Shortly after delivery all the typical symptoms reappeared with "dramatic rapidity"—marked puffiness of the face, swelling of the eyelids, hands and feet, low and rough voice. Six weeks after delivery the basal metabolic rate was —29 per cent and the heart showed the typical alterations observed in myxedema. Thyroxine treatment once more effected improvement of all these symptoms. Zondek concludes that the sudden relapse after termination of pregnancy must be connected with the fact that the substituted activity of the fetal thyroid which had existed during the last months of pregnancy was no longer present.

1. Carlson, A. J., and Ginsburg, H.: The Influence of Pregnancy on the Hyperglycemia of Pancreatic Diabetes, Am. J. Physiol. **36**: 217 (Jan.) 1915.
2. Pack, G. T., and Barber, Donn: The Placental Transmission of Insulin from Fetus to Mother, Am. J. Physiol. **90**: 466 (Oct.) 1929.
3. Randall, L. M., and Rynearson, E. H.: Delivery and Care of the Newborn Infant of the Diabetic Mother, J. A. M. A. **107**: 919 (Sept.) 19) 1936.
4. Ujiie, Shunkai: Ueber die Beziehungen des Nebenschilddrusen- und Schilddrusen-hormones zwischen Mutter und Fötus, Tohoku J. Exper. Med. **20**: 34 (Nov. 30) 1932.
5. Zondek, Hermann: On the Problem of Fetal Function of the Thyroid Gland, Acta med. Scandinav. **103**: 251 (March 8) 1940.

Current Comment

FRANK HOWARD LAHEY—PRESIDENT-ELECT

Perhaps the greatest single attraction in the field of graduate education in the United States for a number of years has been Dr. Frank Howard Lahey of Boston, just elected to the position of President-Elect of the American Medical Association, shortly after passing his sixtieth birthday. He was born in Haverhill, Mass., on June 1, 1880, and received the degree of doctor of medicine from Harvard University in 1904. After his graduation he served as surgeon in the Long Island Hospital in 1904-1905 and in the Boston City Hospital, 1905-1907, and became resident surgeon of the Haymarket Square Relief Station in 1908 and instructor in surgery in Harvard Medical School, 1908-1909 and from 1912 to 1915. He was assistant professor and later professor of surgery in Tufts Medical School from 1913 to 1917. He also served as professor of clinical surgery in Harvard Medical School in 1923-1924. He has been for some time surgeon in chief of the New England Deaconess and New England Baptist Hospitals and director of surgery in the Lahey Clinic. During the World War he served as major and also as director of surgery in Evacuation Hospital 30. He is a regent of the International College of Surgeons in Geneva, fellow and a member of the board of governors of the American College of Surgeons and a member of the American Surgical Association and the American Association for the Study of Goiter. His chief literary contribution, in addition to many periodical articles, is the Lahey Clinic number of the *Surgical Clinics of North America*. He has been a member of the editorial boards of *Surgery, Gynecology and Obstetrics* and of the *New England Journal of Medicine*. In the American Medical Association he was appointed by President Jabez N. Jackson at the Washington session in 1927 as a member of the Council on Scientific Assembly for a term of five years (to end in 1932); he was reappointed for a five year term (to end in 1937) by President E. H. Cary at the New Orleans session in 1932. He was appointed by President Irvin Abell at the San Francisco session in 1938 as a member of the Council on Medical Education and Hospitals for a term of seven years and resigned following his election to the presidency. He was also a member of the Advisory Committee to Cooperate with the Bureau of Medical Economics of the American Medical Association Outlining the Necessary Procedure for Making Studies and Reports of the Prevailing Need for Medical and Preventive Medical Service (later called the Committee on Medical Care), which was established by the Board of Trustees at its February 1938 meeting. He was secretary of the Section on Surgery, 1926-1929, and chairman of the Section on Surgery, 1929-1930. It is doubtful that any other surgeon in the United States is more widely known to the medical profession throughout the nation than is Frank Howard Lahey. He has traveled widely and often and has given freely of his time for improving the quality of surgical diagnosis and procedure. He is a proficient speaker and will fill with distinction the new position of leadership which has just been given to him.

FRANK H. LAHEY, M.D.
PRESIDENT-ELECT OF THE AMERICAN MEDICAL ASSOCIATION

SAFE DRIVING AT NIGHT

Nineteen thousand two hundred persons were killed at night in motor vehicle accidents in the United States during 1938. Although less than one third of the total daily traffic was on the highways at night, 59 per cent of all fatal traffic accidents occurred during the hours of dusk and darkness. The amount of driving after drinking is higher at night and the hours of greatest fatigue are the hours of darkness; however, the Committee on Night Traffic Hazards of the National Safety Council in its 1939 report says that lowered visibility constitutes the major difference in the hazards of night and day driving. The committee points out how adequate visibility can be provided for safe night driving. Motorists should maintain their headlights in good condition. Head lamps can provide safe lighting for moderate speed if the lens is clean on both sides, if the bulb is not blackened, if the reflector is clean, and if all electrical connections are kept in proper condition so as to insure adequate voltage at the lamps; if the head lamps are aimed and focused correctly and if they are used properly; that is, if the upper beam is used when there are no approaching drivers and the lower beam is always used when approaching other drivers, and when driving on lighted highways or lighted city streets. Recent tests have shown, the

committee says, that the average head lamp on the road is producing less than half its possible light output because of tarnished reflectors, dirty lenses and blackened bulbs. The new "sealed beam" headlights appearing on most 1940 passenger cars are intended to provide higher light output in the driving beam for the open road and reduce the glare for the oncoming driver when the traffic beam is used. Most city streets still have the same type of lighting equipment that existed in the horse and buggy age; such lighting systems are wholly inadequate today from the point of view of traffic. The old types of illuminating emit light in all directions at about the same intensity. Illuminants today should be designed to capture the upward emitted light, the light directed toward private premises and the light that results in glare, and distribute it so as to produce uniform pavement brightness. In many places where improved lighting has been installed there has been a reduction in night accidents. In sixteen counties in New Jersey, for example, where modern safety lighting installations have been made, there was a reduction of 37 per cent in the night accident fatalities in the first eleven months of 1938 as compared with 1937. More data are needed to reveal the effect of different kinds of street lighting on accidents of various types. State and city authorities should make a scientific analysis of night accidents to determine the high accident areas and then study the visibility conditions to see whether there is adequate lighting for safe driving. Some cities mean to economize by waiting to turn on their street lights until it is quite dark. This must result in unnecessary accidents, for lighting is essential to the safety of both pedestrians and motorists. If any reduction in street lighting hours is made, it should be in the early morning hours of the summer when the streets are partly empty. In the early evening, when traffic is heaviest, such attempts at economy in street lighting should not be attempted. In many cities and towns a multiplicity of neon and other electrical signs in areas where traffic is controlled by stop and go signals has created a problem. More data are needed to reveal the effect of different kinds of street lighting on accidents. The Committee on Night Traffic Hazards of the National Safety Council proposes to make this study a major activity during the current year.

CHEVALIER JACKSON, M.D.
AWARDED DISTINGUISHED SERVICE MEDAL

DR. CHEVALIER JACKSON RECEIVES DISTINGUISHED SERVICE MEDAL

Among the honors bestowed by the American Medical Association on its members who have won distinction, the one most carefully selected is the Distinguished Service Medal and Citation. Previous recipients have been Dr. Rudolph Matas of New Orleans and Dr. James B. Herrick of Chicago. The 1940 medal was bestowed on Dr. Chevalier Jackson of Philadelphia, known throughout the world as one of the greatest leaders in the field of otolaryngology and especially distinguished for his contributions to bronchoscopy. The physician who receives this medal is selected from a great number of nominations which are made to the committee on this award. They send five nominations to the Board of Trustees, which in turn selects three names from the five; at the very opening of the House of Delegates one of these three is elected to receive the medal and citation. On this occasion the other two nominations presented to the House of Delegates were Dr. Ludvig Hektoen and Dr. James Ewing. The name of Dr. Chevalier Jackson was proposed also in 1939. Dr. Jackson, who because of illness was unable to attend the meeting to receive the medal in person, is now 74 years old. He received his degree of doctor of medicine from Jefferson Medical College in Philadelphia in 1886. He was professor of laryngology at the University of Pittsburgh from 1912 to 1916 and at Jefferson Medical College, Philadelphia, from 1916 to 1924, when he became professor of bronchoscopy and esophagoscopy at Jefferson and at the University of Pennsylvania Graduate School of Medicine. He held both positions until 1930. He retired recently as professor of clinical bronchoscopy at Temple University School of Medicine. His honors include fellowships in practically every leading organization devoted to his specialty throughout the world. He has been decorated by France, Belgium, Italy and Brazil. His writings include three books devoted to his specialty and innumerable contributions to systems of medicine and to surgery. He also received not long ago the Bok award from the city of Philadelphia, given to the resident who in the preceding year has "performed or brought to its culmination an act or contributed a service calculated to advance the best interests of the community."

MEDICAL PREPAREDNESS

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medical preparedness, and such other information and announcements as will be useful to the medical profession.

COMMITTEE ON MEDICAL PREPAREDNESS

Dr. Irvin Abell, Louisville, Ky., Chairman
Dr. Charles A. Dukes, Oakland, Calif.
Dr. Roy W. Fouts, Omaha
Dr. Stanley H. Osborn, Hartford, Conn.
Dr. John H. O'Shea, Spokane, Wash.
Dr. James E. Paullin, Atlanta, Ga.
Dr. Walter G. Phippen, Salem, Mass.
Dr. Fred W. Rankin, Lexington, Ky.
Dr. Harvey B. Stone, Baltimore
Dr. Samuel E. Thompson, Kerryville, Texas

Ex Officio:

Dr. Arthur W. Booth, Elmira, N. Y., Chairman Board of Trustees
Dr. Austin A. Hayden, Chicago, Secretary Board of Trustees
Dr. Nathan B. Van Etten, New York, President American Medical Association
Dr. Olin West, Chicago, Secretary American Medical Association
Dr. Morris Fishbein, Chicago, Editor Journal of the American Medical Association

RESOLUTION ON MEDICAL PREPAREDNESS INTRODUCED BY DR. ARTHUR W. BOOTH, CHAIRMAN, FOR THE BOARD OF TRUSTEES

WHEREAS, The ravages of war again pervade many of the nations and peoples of the world; and

WHEREAS, The President of the United States has indicated to the nation and to the Congress the desirability of military preparedness so that our people may successfully resist attempts to substitute other forms of government for the democracy established by the Constitution of our country; and

WHEREAS, Organization of the nation for preparedness involves from the first the complete cooperation of the physicians of the country for

1. Medical services in the Military, Naval, Aviation and Veterans' administrations:

2. Selection of men physically fit to serve with such agencies; and

3. Rehabilitation of those not physically qualified to enable them to participate in military activities; and

WHEREAS, Preparedness demands also

1. Medical service to the industrial workers engaged in war industries;

2. Continuance of medical care of the civilian population;

3. Education of young men to qualify them for medical service; and

WHEREAS, The American Medical Association now embraces in its membership more than 117,000 of the licensed physicians of the United States; and

WHEREAS, The headquarters facilities of the American Medical Association has available

1. Complete records of all qualified physicians in this country, with data necessary to determine largely their availability for military or other services;

2. Complete information concerning facilities for education in medicine, the medical specialties and other medical activities;

3. Complete information concerning the hospitals of the United States;

4. The necessary facilities for making prompt contact through addressing devices, periodicals and constituent bodies with all medical personnel and medical agencies; and

WHEREAS, Only in the headquarters of the American Medical Association, as far as is known, are such information and facilities available; and

WHEREAS, The American Medical Association is not only the largest but also the only organization containing in its membership qualified physicians in every field of medical practice; and

WHEREAS, During the World War of 1914-1918 the American Medical Association aided in making available the services of more than 60,000 physicians for military and related activities; therefore, be it

Resolved, That the House of Delegates authorize the Board of Trustees to create a Committee on Medical Preparedness, to consist of seven members of this House, with the President of the Association, the Secretary of the Association, the Secretary of the Board of Trustees, and the Editor as ex officio members; and be it further

Resolved, That this committee establish and maintain contact and suitable relationship with all governmental agencies concerned with the prevention of disease and the care of the sick, in both civil and military aspects, so as to make available at the earliest possible moment every facility that the American Medical Association can offer for the health and safety of the American people and the maintenance of American democracy.

REPORT OF THE REFERENCE COMMITTEE UNANIMOUSLY ADOPTED BY THE HOUSE OF DELEGATES

Your committee is proud to see the patriotic tradition of the medical profession so well exemplified in this spontaneous and thorough resolution of our Board of Trustees. It is in strict accord with the history and traditions of the American Medical Association which has always been foremost in offering all its facilities and services to our government in times of stress or emergency. The committee has learned that through an unintentional omission the name of the chairman of the Board of Trustees was not included among the ex officio members and the method of appointing the members from the house was not specified.

We feel that the Chairman of the Board of Trustees should be included among the ex officio members and that the members selected from the House of Delegates should be appointed by the Speaker of the House of Delegates.

Your committee wholeheartedly approves this resolution and moves its adoption with the inclusion of these two changes.

FRANCIS F. BORZELL. EDWARD M. PALLETTE.
JAMES R. MCVAY. J. DUFFY HANCOCK.
MCLAIN ROGERS. EDWARD R. CUNNIFFE.

ANNOUNCEMENT TO THE HOUSE OF DELEGATES BY COL. G. C. DUNHAM, U. S. ARMY MEDICAL CORPS

To the House of Delegates:

The following is a tentative plan for the procurement of professional personnel for the Medical Corps of the Army in the event of a national emergency. This plan has been prepared by the office of the Surgeon General of the Army and is submitted to the House of Delegates of the American Medical Association for its consideration.

1. The American Medical Association to be asked to conduct a survey of the medical profession through its state and local activities.

2. The local or county societies to canvass its members to determine, of those who express a willingness to serve, who should be available for the military service and who, on account of their age, physical disability or commitment in civil capacities should remain at home.

3. The county society to give to each one who expresses his willingness to serve, even though he may be selected to remain at home, a button similar to that which was designed for the Volunteer Medical Service Corps during the last war.

4. The county societies to list those who are selected for the military service according to their professional qualifications, listing as surgeons, psychiatrists, and so on, only those who are members in the national specialists' organizations. Also to select from those who are to remain at home, qualified men for examination boards.

5. The state societies to maintain an available roster of its members.

6. The American Medical Association to maintain a numerical roster of availability by states.

7. The Medical Department of the Army to have one or more selected officers on duty at headquarters, American Medical Association, in Chicago.

8. The War Department, Corps Areas or regional officers to call on the American Medical Association for physicians or specialists as and when required.

9. The American Medical Association to call on the states, according to their quotas, for the physicians required.

10. The state, in turn, to call on its local societies for its quota of physicians.

In the quotas, credits would be given for sponsored unity, and preference would be given to reserve officers wherever their qualifications warrant.

It appears that, in the event of a national emergency of great magnitude, it would be very necessary to conserve the medical profession. This plan would distribute the professional load and, if properly administered, should prevent the stripping of rural and isolated communities of their necessary medical personnel.

There could be an extension of this plan to cover the training program for technicians. The same societies could conduct a survey of the teaching institutions to determine their availability and suitability for the training of such enlisted specialists as would be required. Rational medical service for civilian groups in war industries could be coordinated by the same administrative units.

REPORT OF THE REFERENCE COMMITTEE

Your committee has carefully considered this resolution of Colonel Dunham's and is pleased to see such evidence of a desire for cooperation. We endorse the principles advocated but feel that the details should best be left to the committee established by the resolution of the Board of Trustees.

Your committee feels that in the choice of personnel every physician capable of rendering service be given opportunity to offer such services to our government and that in the selection of personnel for special services there be no arbitrary selection on the basis of organizations, or bodies thus far still in a developmental stage, but rather that membership in well recognized scientific specialty organizations, hospital appointments and similar qualifications be also considered for this purpose.

We therefore move that the thanks of the House be extended to Colonel Dunham and that the general principles of his resolution be endorsed.

EDWARD R. CUNNIFFE. JAMES R. MCVAY.
J. DUFFY HANCOCK. MCLAIN ROGERS.
FRANCIS F. BORZELL. EDWARD M. PALLETTE.

SUPPLEMENTAL REPORT OF THE REFERENCE COMMITTEE

Information has come to the members of this committee that it is expedient to change one part of the resolution offered by the Board of Trustees and adopted by the House of Delegates last Tuesday. The ex officio members of the designated committee reside in New York and Chicago, leaving but seven members for the rest of this great country. Information from military authorities indicates that three additional members would be necessary to organize properly the United States. Therefore your committee recommends that that part of the resolution be changed to read as follows:

"*Resolved*, that the House of Delegates authorize the Board of Trustees to create a Committee on Medical Preparedness to consist of ten members of this House, with the President of the Association, the Chairman of the Board of Trustees, the Secretary of the Association, the Secretary of the Board of Trustees, and the Editor as ex officio members."

J. DUFFY HANCOCK. EDWARD R. CUNNIFFE.
JAMES R. MCVAY.

Under the terms of a resolution adopted by the House on Tuesday, and amended today, the Speaker of the House is directed to appoint ten members of a preparedness committee to serve with the five members named in the resolution.

The following members of the House are appointed: Stanley H. Osborn, Section on Preventive and Industrial Medicine and Public Health. Walter G. Phippen, Massachusetts. Harvey B. Stone, Maryland. James E. Paullin, Section on Practice of Medicine. Fred W. Rankin, Section on Surgery, General and Abdominal. Roy W. Fouts, Nebraska. S. E. Thompson, Texas. Charles A. Dukes, California. John H. O'Shea, Washington. Irvin Abell, Kentucky, General Chairman.

ORGANIZATION SECTION

PROCEEDINGS OF THE NEW YORK SESSION

MINUTES OF THE NINETY-FIRST ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD IN NEW YORK, JUNE 10-14, 1940

HOUSE OF DELEGATES

First Meeting—Monday Morning, June 10

The House of Delegates convened in the Jade Room of The Waldorf-Astoria and was called to order at 10:15 a. m. by the Speaker, Dr. H. H. Shoulders.

Preliminary Report of the Reference Committee on Credentials

A preliminary report of the Reference Committee on Credentials was submitted by the chairman, Dr. J. Newton Hunsberger, Pennsylvania, who reported that 137 delegates with proper credentials had registered.

Roll Call

The Secretary called the roll and announced that a quorum was present.

Distinguished Service Award

Dr. Arthur W. Booth, Chairman of the Board of Trustees, presented the following report:

The Committee on Distinguished Service Award of the American Medical Association submitted five names to the Board of Trustees. In accordance with chapter VI, section 5, of the By-Laws the Board has selected by ballot the following names for presentation to the House in alphabetical order: Dr. James Ewing, New York; Dr. Ludvig Hektoen, Chicago, and Dr. Chevalier Jackson, Philadelphia.

The Speaker appointed as tellers Drs. Samuel J. Kopetzky, New York; Harvey F. Garrison, Mississippi, and B. F. Cook, Vermont.

The tellers spread the ballot and the Secretary announced that 143 delegates had been reported present and that 140 votes had been cast, of which Dr. Chevalier Jackson received 61, Dr. James Ewing 54 and Dr. Ludvig Hektoen 25.

Since no nominee received a majority of the votes, the Speaker announced that another vote would have to be taken and that, in accordance with the rules, the name of the nominee receiving the smallest number of votes, namely, Dr. Ludvig Hektoen, would be dropped from the ballot.

The Secretary announced that 147 votes had been cast but that only 145 delegates had been reported registered, and the Speaker declared that there was no ballot.

Dr. J. Newton Hunsberger, Chairman, Reference Committee on Credentials, stated that 157 delegates had been registered, and the Secretary announced that 145 votes had been cast, of which Dr. Chevalier Jackson received 74 and Dr. James Ewing 71. The Speaker declared Dr. Chevalier Jackson, who received a majority of the votes cast, to be elected by the House to receive the Distinguished Service Award of the American Medical Association.

Adoption of Minutes of St. Louis Session

On motion of Dr. A. T. McCormack, Kentucky, seconded by Dr. Walter E. Vest, West Virginia, and carried, the House dispensed with the reading of the minutes and adopted the minutes as published.

Address of the Speaker, Dr. H. H. Shoulders

The Vice Speaker, Dr. R. W. Fouts, Omaha, presided while the Speaker, Dr. H. H. Shoulders, read his address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker and Members of the House:

I wish, first, to express my appreciation of the honor and privilege of addressing you again as your presiding officer.

Second, I must say that I have no recommendations to make with regard to the procedure which has been followed for many years in transacting the business of the House.

It is my wish and intention to cooperate with you in the performance of our respective duties in such a way that the actions taken on all matters presented shall truly represent the deliberate and considered judgment of the House.

You are keenly aware of your responsibilities as the legislative branch of the government of a medical organization which is one of the greatest, if not the greatest, in the world. Your sense of responsibility in this connection needs no encouragement from me. Nor could I enhance your appreciation of the greatness of this Association.

It occurred to me that it might be worth while for us to consider for a moment at this time the qualities and attributes of this organization which make it great. Some would say our greatness is due to the fact that we have 116,266 members, the largest membership of any medical organization in the world. Another might mention a long list of scientific achievements to the credit of the organization. Still another might point to the many contributions made to increasing the skill and ability of the medical profession in serving humanity. It is true that the American Medical Association is the largest medical organization in the world. Its contributions to medical science have been nothing short of marvelous. It is also true that its contributions to the betterment of human welfare have been inestimable. In my humble judgment neither one of these accomplishments, nor all of them together, account for the greatness of this Association. We all know that mere bigness has never made an organization great. We know that scientific achievements alone do not make an organization really great. We know also that contributions to advancement in the art of medicine do not make this organization great. These contributions and accomplishments are evidences of greatness but they do not explain the achievement of greatness.

We have seen human organizations composed of large numbers disintegrate and disappear. We have witnessed and are still witnessing, at the present time, something of the disaster which results from the application of scientific knowledge to very destructive ends. We know that scientific advancement in any field, when not guided and directed by a high order of ethical principles, may, and often does, bring about tragic consequences. This is especially true in the field of medicine. The consequences of such a situation may, in fact, be more tragic than if the scientific advancement had never been made.

In our search for the qualities and attributes which are responsible for the greatness of this organization we must look backward a bit and underneath these evidences of greatness.

The following simple statement is found in the constitution of this organization: "The objects of the Association are to

promote the science and art of medicine and the betterment of public health." Those who wrote and adopted that phrase as a statement of purpose must have had something of the philosophy of service expressed by the Great Physician. But the mere adoption of such a statement does not suffice to account for greatness. We have witnessed on many occasions the adoption of noble statements of purpose by organizations scientific, political and otherwise. We have also witnessed the repudiation of these statements by acts soon after their adoption.

The extent to which this statement of purpose has permeated the organization and motivated its actions determines the measure of its influence in accounting for greatness. Reference to actions of the House on many occasions and on many issues will reveal that the spirit of the statement has been ever present.

A long time ago this House of Delegates adopted a code of ethical principles. That document, in my opinion, deserves a place in our reverence alongside the Declaration of Independence and the Constitution of the United States. Its provisions were wisely designed to accomplish a noble purpose. They were not intended to promote and protect the financial interests of individual doctors and they have never so operated. Their observance has never hindered scientific progress nor have they hindered the application of the science and art of medicine to the needs of humanity. The complete opposite is true. They have promoted the science and art of medicine and, what is more, they have operated in such a way as to make this progress safe. They have promoted the legitimate use and prevented the dangerous abuse of scientific advancement in the field of medicine. It is a fact that financial benefit to individual doctors results from the violation of these principles, not from their observance. In the same way injury comes to the public.

We find also that the spirit of democracy was breathed into the vitals of this organization at the very beginning of its life. That spirit, too, has remained. When the matter of freedom is touched by any issue raised in this House, your concern becomes alert at once, not for the freedom of doctors, but for the freedom of patients. You have, in fact, displayed more concern for the freedom of patients than you have for the freedom of doctors.

It is insisted at times that, if these principles were destroyed, professional progress would be augmented; that, if patients and doctors alike were subjected to the direction of some powerful individual or government agency, all the faults and defects in the present system of medical care would disappear and all would be perfect. We are the first to admit that, if all these directing and restraining influences were destroyed and all our activities and attitudes were determined and directed by a single individual or agency, a far different situation would be brought about. First, it would make of this organization a far more potent political force. Actions could be reversed overnight if political expediency seemed to demand. Convictions would be submerged and rendered impotent. It would make of us a streamlined political outfit, but no one could predict what the ultimate consequences would be. Under our existing rules of procedure, guided as we are by the influences referred to, we are in position to take a long range view of every situation. We are in position to consider not only the immediate but the remote effects of every new development. We are in position to make the kind of progress in the science and art of medicine that is safe. And, what is more, by preserving these principles we contribute to the preservation of that priceless heritage of freedom for all.

These are the attributes which, in my opinion, have made our organization great. To this House of Delegates has been committed the task of judging and preserving the qualities and attributes which deserve to live.

In Memoriam

This House of Delegates very appropriately established the custom of taking official notice of the death of Fellows who have served the Association in official capacities, either as members of the House or as officers of the Association.

Pursuant to this custom it now becomes the melancholy duty of the Speaker to call the roll of those who have passed into the Great Beyond since we met last May:

James H. Borrell, New York, 1937-1939.
Perry Bromberg, Tennessee, 1913-1915; 1917.
J. Forrest Burnham, Massachusetts, 1915; 1919-1934; 1935 special session; 1935-1936.
John M. Cooley, Pennsylvania, 1923.
Arthur E. Crow, Pennsylvania, 1925-1927.
H. A. Davidson, Kentucky, 1923; 1926-1927.
Robert V. Day, California, 1925-1926.
Thomas D. Doan, Illinois, 1918.
Charles A. Elliott, Chicago, Vice President, 1927-1928.
Alexander C. Ewing, Utah, 1903.
Charles Falkowsky Jr., Pennsylvania, 1936; 1938; 1938 special session; 1939.
Thomas P. Farmer, New York, 1933-1934; 1935 special session; 1935; 1937; 1938; 1938 special session; 1939.
George M. Fisher, New York, 1923; 1927-1928; 1934-1937; 1938 special session; 1938-1939.
William D. Haggard, Tennessee, 1905-1906; Section on Surgery, General and Abdominal, 1922; President-Elect 1924-1925; President 1925-1926.
J. N. Hall, Colorado, 1903; 1906-1908; 1919-1921; Member Judicial Council 1921-1931.
J. F. Highsmith, North Carolina, 1907-1909; 1912; 1921-1922.
Walter A. Lane, Massachusetts, 1937.
William V. Laws, Arkansas, 1913-1914.
W. C. Leary, Massachusetts, 1934.
Arthur T. Legg, Boston, Section on Orthopedic Surgery, 1936.
J. P. Lord, Nebraska, 1921; 1925.
Charles H. Mayo, Rochester, Minn., President-Elect, 1916-1917; President, 1917-1918.
William J. Mayo, Rochester, Minn., President-Elect, 1905-1906; President, 1906-1907.
Alexius McGlannan, Maryland, 1915; 1917; 1930-1932.
L. H. A. Nickerson, Illinois, 1908-1909.
Lee Vallette Parmley, Arkansas, 1936.
Fred W. Powers, Iowa, 1905.
E. A. Pray, North Dakota, 1920; 1922-1923; 1925; 1927-1928.
S. C. Red, Texas, 1929.
James E. Sadlier, New York, 1909-1910; 1929-1932.
William B. Small, Iowa, 1917-1920.
Robert P. Smith, Maryland, 1905.
Martin L. Stevens, North Carolina, 1907; 1923-1934; 1935 special session; 1935-1936; 1938; 1938 special session; 1939.
Charles W. Stone, Ohio, 1931-1935 special session; 1935-1937; 1939.
D. D. Swearingin, New Mexico, 1919.
W. O. Sweek, Arizona, 1918; 1935 special session.
Frederick H. Thompson, Massachusetts, 1911-1912.
Vernon L. Treynor, Iowa, 1934-1935 special session; 1935-1937; 1938 special session; 1939.
F. E. Trotter, Hawaii, 1924; 1930.
Earl R. Whipple, Pennsylvania, 1930.
C. B. Wright, Minneapolis, 1930, 1931, 1932, 1933; Trustee from 1933 until the present.

This roll contains the names of illustrious men in medicine. They carried the banner of our profession and held it high. Their examples of service and sacrifice are still, and will ever be, an inspiration to us.

It is suggested, Mr. Speaker, that the House rise and remain standing for one minute as an affectionate tribute to their memory.

At the request of the Vice Speaker the members of the House arose and stood in silent tribute to the memory of departed delegates.

Reference Committees

The Speaker announced the personnel of the Reference Committees and, without objection from the House, included the personnel of a Reference Committee on Executive Session:

SECTIONS AND SECTION WORK

Stanley H. Osborn, Chairman, Section on Preventive and Industrial Medicine and Public Health
George Gray Ward.....Section on Obstetrics and Gynecology
Thomas F. Thornton.....Iowa
Samuel P. Mengel.....Pennsylvania
Joseph F. Smith.....Wisconsin

RULES AND ORDER OF BUSINESS

John H. O'Shea, Chairman.....Washington
William D. Johnson.....New York
Edmond F. Cody.....Massachusetts
Hilton S. Read.....New Jersey
E. H. Skinner.....Section on Radiology

MEDICAL EDUCATION

Harvey B. Stone, Chairman.....Maryland
Elbridge J. Best.....California
L. A. Buie.....Section on Gastro-Enterology and Proctology
C. E. Kiely.....Ohio
George Blumer.....Connecticut

LEGISLATION AND PUBLIC RELATIONS

F. S. Crockett, Chairman.....Indiana
Charles J. Whalen.....Illinois
L. G. Christian.....Michigan
Wingate M. Johnson.....North Carolina
Thomas A. McGoldrick.....New York

HYGIENE AND PUBLIC HEALTH

E. S. Hamilton, Chairman.....Illinois
W. F. Draper.....United States Public Health Service
Karl S. J. Hohlen.....Nebraska
Clyde L. Cummer.....Section on Dermatology and Syphilology
Felix Underwood.....Mississippi

AMENDMENTS TO CONSTITUTION AND BY-LAWS

David D. Scannell, Chairman.....Massachusetts
William Weston.....Section on Pediatrics
Barney J. Hein.....Ohio
Charles A. Dukes.....California
A. A. Walker.....Alabama

REPORTS OF OFFICERS

Walter E. Vest, Chairman.....West Virginia
William R. Brooksher.....Arkansas
Andrew F. McBride.....New Jersey
James Q. Graves.....Louisiana
Walter B. Martin.....Virginia

REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Ben R. McClellan, Chairman.....Ohio
John M. Birnie.....Massachusetts
John H. Fitzgibbon.....Oregon
William F. Braasch.....Minnesota
Thomas M. Brennan.....New York

CREDENTIALS

J. Newton Hunsberger, Chairman.....Pennsylvania
George R. Dillinger.....Indiana
Alonzo A. Ross.....Texas
R. L. Zech.....Washington
G. Henry Mundt.....Illinois

MISCELLANEOUS BUSINESS

Charles G. Strickland, Chairman.....Pennsylvania
Howard L. Snyder.....Kansas
Henry C. Macatee.....District of Columbia
Frederic E. Sondern.....New York
Herbert L. Bryans.....Florida

EXECUTIVE SESSION

Edward R. Cunniffe, Chairman.....New York
Francis F. Borzell.....Pennsylvania
James R. McVay.....Missouri
J. Duffy Hancock.....Kentucky
Edward M. Pallette.....California
McLain Rogers.....Oklahoma
W. H. Myers.....Georgia

REAPPORTIONMENT OF DELEGATES

Arthur T. McCormack, Chairman.....Kentucky
H. B. Everett.....Tennessee
William A. Ellingwood.....Maine
Olin West.....Secretary
H. H. Shoulders.....Speaker, House of Delegates

SERGEANTS AT ARMS

Frank E. Reeder.....Michigan
J. H. Irwin.....Montana
Horace J. Brown.....Nevada

Address of President Rock Sleyster

The Speaker resumed the chair and presented the President, Dr. Rock Sleyster, Wauwatosa, Wis., who delivered the following address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker and Members of the House of Delegates:

Two years ago this House of Delegates placed with me a responsibility which could not be lightly assumed. With it came unusual opportunities for service, for observations and for study. I have tried to take every advantage of these opportunities so far as my strength would permit. During this period I have covered every section of our country and regret only that I was unable to accept all invitations extended to me. In thirty-seven years of work in organized medicine I have met medical men from all sections in their own homes, in their own meetings and in their own fields of work and I have been able to discuss with them their individual problems. This has been a pleasant and a profitable experience. I hope these visits have been helpful to others as they have been to me, and I want you to know of my deep appreciation of this opportunity to serve. It is customary for your retiring President to record some impressions gained during his tenure of office.

SOLIDARITY

First I want to comment on a truly united profession. There are those who have tried through the creation of some small self-constituted groups and committees to create the impression that the medical profession is seriously divided. This is not true! Purely local conditions do influence thinking; as the result of the serious determination to meet local responsibility, certain plans may be at variance with those found elsewhere. This is natural and to be expected. Almost to a man, however, I have found a solidarity of the medical profession. I have found everywhere an enthusiastic loyalty to the American Medical Association. I have found a singleness of purpose in maintaining the policies determined by this House of Delegates—their democratically constituted representative body. The report of the Secretary confirms this observation. A gain of 3,171 was recorded in forty-six constituent associations for the year ended March 1, 1940. During the past five years—years during which the organization was subjected to every attack ranging from vicious propaganda to actual indictment—the membership of the American Medical Association was increased by the entirely voluntary enlistment of more than 15,000 new members anxious to participate in the defense of medical standards, medical advances and the public health. This is our answer to propaganda designed to create the impression that ours is not a united group.

INTEREST

One cannot go about the United States without being impressed with the growth of interest in medical science and affairs. I have addressed lay meetings conducted by lay organizations with an attendance of more than fifteen hundred. I have addressed meetings of rural county societies with an attendance of nearly half the state membership, many of the members having driven more than a hundred miles to attend. Everywhere I have been impressed with the sincerity and earnestness of purpose of medical men to measure up to every responsibility in meeting problems related to making available the highest quality of medical service regardless of material reward. Everywhere I have been impressed with the desire to secure the benefits of all that is new in scientific advance. Never at any time, in any place, have I heard an expression of selfishness. The one great question has been "How may we better defend and preserve unimpaired American medicine in its present preeminent position—how may we better serve those who place their confidence in us?" I cannot refrain from commenting at this point on the American medical man as I have found him in his own community. I have always held him in highest esteem, but more than ever I admire his fine qualities of heart and mind. I know of no group with higher ideals or with greater unselfishness. I am proud of him, of all he stands for, and of his record of accomplishment.

WORK OF THE ASSOCIATION

In addressing you at St. Louis last year I called attention to the danger to the primary purposes of the American Medical Association found in the pressure of economic and political attack. It is to be regretted that an organization which through the years has been able to devote all of its resources, energy and thought to the advancement of science and improvement in its application should in any degree be diverted from its primary purpose in order to defend a record so outstanding. It is heartening to note that, in spite of all this interference, the work of the headquarters, the Councils, the Bureaus and publications has gone on with increasing efficiency and with increased demands for their service. These departments stand for ideals you have created. They are establishing standards you have set. They are making attacks you have directed. We are proud of the reforms they have brought about. But they are subject now, as in the past, to insidious counterattack by selfish interests both in and out of the profession. To them you owe a paternal defense and loyalty. This can be given only by a greater familiarity with their historical background and a better knowledge of their purposes and functions. It requires an understanding of the reasons for what are often innocent appearing movements, movements which may enlist even well intentioned members but which, if carried through, will take from these bodies functions which you do not wish placed with small, interested and self-appointed groups responsible to no one. The observation I most regret to report is the ignorance I have found everywhere regarding the activities of the Association. I wish it were possible that during

the coming year every component society could give over one meeting to an illustrated program bringing home to its members the activities and the policies of this Association. Speakers for such a venture could obviously not be furnished by our headquarters but they could be developed by each state society. A team could be selected and sent to our headquarters for necessary information and inspiration. Illustrative material could be provided. I know of no expenditure which would yield richer returns.

PREPAREDNESS

When the United States entered the World War the American Medical Association offered its services to the federal government in every capacity. More than 200,000 blanks for regular application for commissions in the Medical Reserve Corps were printed by the Association and circulated among physicians. As a result, more than 30,000 applicants were commissioned in the Army and, in addition, more than 3,000 in the Navy.

The American Medical Association acted as a center of information for physicians and sent out hundreds of letters each week in response to inquiries regarding the Army, the Navy, the Public Health and the Civilian Service. More than 5,000 pamphlets were printed by this office giving information regarding entrance into the Medical Corps. State and county organizations were supplied with detailed information concerning the work of physicians in their own communities and with those available for civil and industrial practice.

Early in the war the Association cooperated with the Provost Marshal General in relationship to the medical aspects of the selective service. The House of Delegates itself selected a special war committee to obtain information and to cooperate with all agencies in fulfilling to the utmost the medical needs of the organization.

At the time the Armistice was signed there were 35,000 medical officers in the Army and 3,000 in the Navy, which alone represented about 26 per cent of the entire medical profession of the country. Moreover the mobilization of the medical profession was based on utilization of the county and state medical societies which constitute the American Medical Association. Equally significant was the work of the physicians on the local draft boards, who provided our Army with men physically fit to accomplish the magnificent work which was accomplished in the World War.

At that time the mobilization of the industrial forces and the health of the nation and the protection of both the nation and its armies were regarded of such importance as to demand direct representation of the medical profession on the government board for national defense.

During the war the ratio of medical officers killed and dying of wounds was exceeded only by that of the infantry and artillery.

Today our nation is again preparing to defend itself to the utmost against any type of aggression from without. The medical profession, through its House of Delegates, I know, will pledge itself to give, as it has always given in the past, every iota of service that it is capable of rendering, and I would call on this House of Delegates to prepare, in suitable form, an offer of this type to the federal government.

PUBLIC RELATIONS

Today marks the opening of the annual session of an organization which has gathered each year for nearly a century from the four corners of this great country for the sole purpose of improving its service to the sick. What a contrast to a world gone mad in its efforts to take human life—a world exhausting its resources in preparing means of destruction! During the last half century the progress of science, and the art of its application in a country which has kept it free and unfettered from political interference, have brought blessings never before enjoyed by any people. Free men, unworried by restrictions, devotedly probing the unknown causes of suffering, have developed and applied knowledge which in the century past has doubled the life expectancy of man, has conquered many of the scourges, has produced specific treatment for diseases formerly hopeless and has given the American people the highest standards of health the world has ever known.

All this has been coincidental with and because of the adoption and development by our nation, when first founded, of a political philosophy that government exists for its people instead of the people for government. Government was to protect individual freedom and expression, not to restrict it. Government was to make men free, to do away with fear, to encourage self reliance, to remove barriers to thought, to stimulate imagination and to secure rewards for sacrifice and effort. In this security, with this freedom from interference, science in all its branches has made progress in our lifetime beyond the wildest dreams of even a Jules Verne. No branch of science, however, has brought blessings to humanity comparable to those which can be credited to the progress of medicine.

During the last decade we have seen abroad the reversal of the gradual trend toward development of the individual. Each year there has been more and more encroachment on freedom of thought and opportunity of expression. Opportunists, playing on the emotions of people in distress, have gradually brought about a return of restrictions and regimentations which progress through the century had gradually reduced. Through fear and false promises of security, individual liberty has been surrendered. Centralization of power, with its inherent greed under dictatorship, is destroying the moral and the economic, scientific and spiritual values of the world. The survival of civilization is threatened. We have but to make simple comparison with records abroad to determine the disastrous effect on health and medical progress. As government regulation and interference increased, progress was stifled and regression was immediate.

In all this world only America stands out today as enjoying a freedom of thought and action which can carry on. Even here we note with growing concern certain trends toward centralization of power—trends which are placing under political regulation more and more lines of human effort. No informed and thoughtful person can deny the threat to medical progress and to the public health in some of the proposed legislation in Washington. If enacted as introduced it would represent an advance in restrictive regulation which would parallel the disastrous developments abroad. The results could not be different from those we have been led to expect through experience.

We come now to the universal question "What is the answer to the problems which confront us?" I have no answer. I know of no one magic word which will unlock the doors to the future and make easy a solution of problems which baffle the world. Of this I am certain: The problems we are called on to solve are only a part of a whole. They should not be singled out for radical treatment and experimentation. They are end results of economic failures of a world gone mad with greed—failures which have left their ugly mark on every walk of life. We are not to be blamed for their origin. No treatment can be efficacious which disregards cause and fails to treat the patient as a whole. No legislation which seeks to care for end results, by ignoring fundamentals, can furnish any adequate answer to the problem of medical care. It is not as simple as all this.

We do not deny a responsibility of government for the health of its people. The history of this Association is a record of continued effort to make government conscious of this duty. The great health movements of this country were initiated, fostered and promoted by the medical profession. We believe, however, that the proper function of government under a democratic system is the protection of its people from hazards to health, the promotion of standards of living which are favorable to health, and leaving to a free people the free choice of medical care when illness comes unless indigence prevents. We believe that the most profitable expenditure of government effort and means in the cause of the sick would be attained, as it has been in the past, through efforts toward the prevention of disease. Let government fight disease at its source as it should; protect the well from the hazards of contact; insure a mode of living which supplies the requirements of proper food and adequate clothing; eliminate the hazards of slum and tenement; provide proper housing; offer wholesome recreation; instruct the masses to avoid the dangers which go with igno-

rance; educate them to take advantage promptly and intelligently of means now available when threatened with illness, and protect them from the appalling toll of senseless and unnecessary accidents. Let government concentrate its every effort on these sources of mortality and morbidity, and the cause of health, life and happiness will be advanced countless times more than it can be furthered by placing the sick under any form of political control.

The American Medical Association stands almost alone in defense of a historic system of freedom of science and its application for human welfare—a system which shows with pride a record unrivaled in the benefits it has brought to humanity. At this session let us rededicate ourselves to a defense of those principles and policies so necessary to preserve the accomplishments of the past, so necessary to guarantee progress in the future.

Address of President-Elect Nathan B. Van Etten

The Speaker presented the President-Elect, Dr. Nathan B. Van Etten, New York, who delivered the following address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker and Members of the House of Delegates:

The last time the American Medical Association honored New York was in 1917, when the country was involved in the World War, which enlisted the medical profession in a selective draft, in military training, in military hospitals here and abroad and in active service on the field of battle.

Again the horrors of fratricide of even wider dimensions stir our emotions; again the uncertainties of the continuation of our civilization present a confusing prospect. After long preparation of a new generation of people, through education in paganistic ideologies, intolerance, persecution and brutal expulsion of nonconformists; after reversions from limited democracies to autocracies of the most violent types the pagans are marching, destroying peaceful homes and murdering inoffensive civilian neutrals in an effort to gain world domination. Again the medical profession in America is being mobilized to defend our liberal democracy against the invasion of foreign influences.

If paganism is successful in the European theater, its influence will be spherical and strong resistance must be organized in the United States. Although our borders may not be crossed, the subversive influence of so-called "fifth columns," already here, will grow stronger in our national administration and we may be compelled to follow dictation which may destroy the practice of medicine as we know it and as we hoped it might become. The American Medical Association has already offered all of its organizational facilities to the federal government and stands ready to cooperate to the limit of its ability in all measures of national defense. If we must enter a new war as combatants, we shall do so whole heartedly.

Love of country is a noble passion, but loss of the strong position of organized medicine in the United States would be deplorable and in the midst of this excited moment we must not lose sight of our patriotic ideals for the health and happiness of our people. We must not lose sight of the dangers to medical practice through concentrations of federal authority. Regimentation is a word which has been so greatly overworked that we shrink from its frequent use. We do not like the sound of totalitarianism. The thought of dictatorship in America is revolting. And yet appeals to popular emotion under the egis of patriotism, of social security, of pensions, of welfare, of relief of unemployment or of the people's health have carried many people from confidence in their ability to take care of themselves to belief that they have no personal responsibility for providing the sources of paternalism which they expect to enjoy. They believe that they will drink forever from the inexhaustible well springs of government. Dictatorships are built on such public sentiment. If such sentiments prevail, the medical profession may well expect a fate similar to that which developed in Germany and reduced the physician to a very low place in the social scale.

Compulsory health insurance was advocated here in 1917 and has been assiduously pushed by some welfare organizations which would have been obliged to close their doors long ago except for the generous support of the medical profession. Organized medicine has successfully prevented the legal establishment of any of these foreign systems, but the skeletal fabric has been erected in the systems of temporary emergency relief administrations and must be closely watched by all physicians lest they awaken some day to a realization that they have been regimented while they slept.

The President's plan for medical service through small hospitals in places where they are needed is in harmony with the platform of the American Medical Association and should be supported by the medical profession. There are, however, those who see in this part of the government program merely one foot in a door opening toward the development of the health program proposed by Senator Wagner in his original bill, S. 1620. This opinion is supported by Senator Murray's statement in reporting the modified Wagner-George bill, S. 3230, when he said "Your committee recognizes that the program proposed under this bill is only a step toward the solution of the health problems which have received its attention for several months." I believe, however, that we should go along with the President in this matter and favor the building of small hospitals and additions to existing hospitals where the need for them can be proved.

There are physicians who approve the President's plans in principle and in many details but who feel that it may be easy to enlarge the meaning of these hospitals to include all sorts of collateral construction that will absorb considerably more money than the ten millions which may be appropriated for the first year. Already the committee seems to be thinking in terms of elaborate diagnostic centers and seems to expect the government, rather than the local profession, to run them, when all that is really needed is clean, warm places for the care of the acutely sick by competent personnel. Small communities cannot usually support specialists.

If these hospitals can be considered as workshops for ordinary physicians sufficiently educated to take care of average patients who will make up the average tenantry of these institutions, these hospitals may satisfy a real need. For patients needing more expert care, would not ambulance service to carry them to larger hospitals in larger towns solve their problems in a better way than by trying to maintain experts in small places? Building elaborate hospitals in places where they cannot be supported or served locally will only waste money. Planting subsidized physicians in such places would not seem to inspire confidence in their ability to give competent service. Bringing medical care closer to people who may need it is admirable, but all phases of the question need careful study.

When Herman Biggs was health commissioner of the state of New York he proposed building cottage hospitals and laboratories in order to solve the rural problem. At a hearing before Governor Smith everybody seemed to favor the project. Finally the governor said he would like to hear what some country doctor thought about it and a doctor from Malone, away up in the Adirondacks, rose and said "In the summer time the Adirondacks are full of city people and there are plenty of city doctors to take care of them, but in winter very few people are there and the country doctors and the small towns have plenty of facilities to care for them. All we ask you to do, Governor, is to keep the roads open." The cottage hospitals were not built. Good roads in the state of New York solved the rural problem. There is now a physician within thirty minutes of every person in the state.

The health needs of the people are the concern of the medical profession and must be discovered and remedied by physicians, many of whom have been prone to wait for lay people to demand new services before they responded to an obvious need. The result is that the medical profession is constantly attacked by those who are playing political games and looking for public approval and salaried jobs. This situation should be reversed. The physician should direct local efforts in community health. A community that has no health program is

culpably negligent and so are the physicians who permit such service failure. There seems to be confusion over the question of real needs. What and where are they? The Council on Medical Education and Hospitals has made surveys of hospital needs in every state and its surveys do not justify the claims of those who are supposed to represent the people in public places. Are the Council's surveys correct? Might it not be worth while for every delegate to carry home the Council's appraisal of the health needs of his state and examine every county and community of his state from local points of view and ascertain for himself wherein the Council's figures differ from the factual data which he may be able to discover? The delegate who does not know local needs is not a fully qualified representative. If he cannot bring to this body an accurate picture which will justify intelligent action on national health problems his failure discredits the final judgment of this policy making group.

I would like to ask each delegate a few questions: Does your state need more hospitals in new locations? Does your state need more beds in existing hospitals? Does your state need more laboratories? Does your state need more ambulances? Does your state need and can it support more doctors? Does your state need more specialists? Does your state need more public health nurses? Does your state need more welfare workers? Does the health program in your state need financial help through federal agencies from the general tax pool? Have you read the Wagner health bill, S. 1620? Have you read the Mead bill? Have you read the Pfeiffer bill? Have you read the modified Wagner-George bill? Have you studied the President's plan? Do you know the American Medical Association's platform by heart? And do you understand its implications? Do you know Surgeon General Parran's plan for a crusade against syphilis? Have you thought about the possible effect of government interference on your own private practice? Does the medical service in your state serve your citizens adequately? Among other states New Jersey gives the following answer: "Within the scope of any reasonable definition of the term [adequacy] the facilities and their distribution in this state are adequate. Lack of acceptance of these facilities is the only reason for any person in this state not receiving medical care." Can you say the same for your state?

Once more may I remind you gentlemen of the House that you are the most powerful officers of organized medicine: that every one of you has been chosen to represent the physicians of your states and that on you rests a heavy responsibility at all times, and especially at a time when not only the practice of medicine as you know it but the problem of the future health of all our people is being attacked by amateur health philosophers who know nothing about the personal practice of medicine and who know about mass medicine only from superficial observation of foreign systems none of which have improved the quality of medical service or have produced any thing superior to our present system in the United States in 1940.

None of you can claim perfection for our system of delivering medical service, but all of you know that the American Medical Association has been working for ninety-three years to improve it, that its chief concern is better health for all our people and that nowhere on earth have better results been attained.

Last year in St. Louis you developed a program for medicine which your Trustees translated into an eight point platform. The first point was the advocacy of coordination of federal health functions under one agency. This question has long been debated without result. In the January issue of *California and Western Medicine* it is stated that Dr. Thomas M. Logan proposed a national health department in 1871. I quote his words: "Let us have a Secretary of Health, as well as a Secretary of War. The achievement of this great national undertaking, as of every other great and good work among men, can only be effected by time and patience, by rational inquiry and enlightened persistence."

In 1875 the House of Delegates asked for a Secretary of Health in the cabinet of the President. A renewal of this desire for a coordination of health functions has met with the favor of many people within the profession and in public life. Representative Pfeiffer introduced a bill "To establish a Department of Health" on March 6, 1939. It was referred to the Committee on Expenditures in the Executive Department, where it still reposes. Hon. Paul McNutt advocates it strongly and plenty of support can be gained if the physicians of the country really desire it. If city health departments have proved indispensable, if state health departments have proved valuable, why has a national health department been so long postponed?

I believe that it is an important defensive measure and that it is timely to attack the problem with confidence in a successful issue.

I believe that it is a sane procedure for developing an intelligent correlation of national health problems.

I believe that erecting a national health department may be one way toward bringing the good offices of the government into concert with the ideals of the American Medical Association's platform.

I believe that the medical profession should go along with the government as far as possible for the common good without sacrificing its individual interests in the care of the sick and its collective interests in the prevention of disease.

I believe that the medical profession by tradition and by education is highly qualified to stimulate and sustain the morale of our people in times of crisis, when pagan ideologies are undermining and destroying high ideals. We must not minimize the seriousness of the present moment. Distance may ensure temporary safety, but disruption of our society is imminent.

If we have any religion, if we have faith in God and our fellow men, now is the time to cherish it and to fight for it with confidence that we shall prevail.

Address of Vice President Alphonse McMahon

The Speaker presented the Vice President, Dr. Alphonse McMahon, St. Louis, Mo., who addressed the House as follows:

Mr. Speaker, Members of the House of Delegates:

I have prepared no formal speech for this morning, for which fact I am sure you are quite happy. I do want to take this opportunity, however, to thank the House of Delegates for the honor accorded to the St. Louis Medical Society in electing one of its members to this office. I also want to thank the House for the pleasure given to me in the past year of being permitted to attend some of the activities of this great Association. Through this contact, I have learned something of the tremendous duties and responsibilities devolving on your officers. I want to thank these officers and the members of the Board of Trustees for the privileges accorded me in attending the sessions and also for the many courtesies extended to me in the past year. Thank you very much!

Address of Dr. T. C. Routley

On request of the Speaker, the Secretary presented to the House Dr. T. C. Routley, Official Representative of the Canadian Medical Association, who addressed the House as follows:

Mr. Speaker, Mr. President, Mr. President-Elect, Gentlemen:

I naturally am deeply touched by the warmth and cordiality of your welcome. For a period now of seventeen years you have been receiving me on my perennial visits, and on each occasion I have gone away feeling that I loved you more. You took me into your hearts and your homes and I have felt that I was amongst good friends.

Last night when I crossed from Canada to the United States only two incidents occurred which made me conscious of the fact that I was leaving my native land to proceed to that of a friendly neighbor. In the first instance, a most courteous young gentleman came to my compartment and told me that he was

the immigration officer. He asked me who I was and where I was going. He took time to sit down to tell me how welcome I would be in the United States.

The next caller was the customs man, who asked me how much hard liquor I had and one or two other similarly pleasant questions and assured me, too, that I would be most welcome in this country.

Mr. Speaker, I would ask you, sir, and ladies and gentlemen, to contrast that episode with what is taking place in other parts of the world today. I think, sir, that these two countries and this continent still have a great opportunity to demonstrate to the world what friendly neighbors can be to one another.

It is now my very pleasant duty to bring you cordial greetings from the Canadian Medical Association, which I have the honor to represent as its General Secretary. Our association is holding its seventy-first annual meeting in Toronto next week, and I am charged to say to you that every member and colleague of the American Medical Association who finds it convenient to come to Toronto will be most welcome indeed to all of the facilities and everything that we have to offer you in that city.

Since I saw you last we have had to take on a new job in Canada and, if you will forgive me for trespassing on your time for a moment or two longer, perhaps you would allow me to say this: When our country entered the war, our association did just what you would do here under like conditions. We told the government that we were prepared to assist. Within three days we had mobilized the medical profession of Canada. Ninety per cent of our profession volunteered their services, and of these 90 per cent volunteered to go anywhere or do anything that might be required. What we have attempted to do as a medical association is to put round pegs in round holes, and we are able to guarantee to our country that, no matter what the exigencies may be, we shall be able to provide medical personnel for all emergencies and all services, and indeed, sir, if there is any person in this room whom I had the good fortune to meet in England some twenty-three or twenty-four years ago, I would be most happy to meet him again. When your country entered the war, you sent across an advance guard of doctors and engineers. Some fifty of these doctors came down to Salisbury Plain, and as I was the only Canadian in that British army at that moment, I was charged with the responsibility of taking these men in tow and telling them something about forming fours and saluting.

You will recall that in those days doctors were supposed to know nothing about war. Many of us found out a lot about it before we were through. If any of those men happen to be here, I should greatly esteem it a privilege to meet them once again.

Mr. Chairman, let me say again I greet you, I salute you, and I trust as friendly neighbors we may always go on demonstrating to this world just what it means to understand man's humanity to man.

THE SPEAKER: This expression by the House I am sure should not be supplemented by any remarks of mine. We welcome and appreciate your presence.

REPORTS OF OFFICERS

Report of the Secretary

Dr. Olin West presented his report as Secretary, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary, with the exception of the portion referring to a proposed amendment to the Constitution, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws and with the further exception of that portion relating to the resolution from Louisiana dealing with the Harrison Narcotic Act, which was referred to the Reference Committee on Legislation and Public Relations.

Report of Board of Trustees

Dr. Arthur W. Booth, Chairman, presented the report of the Board of Trustees as presented in the Handbook as well as the following reports, which were referred to the Reference Committee on Reports of Board of Trustees and Secretary:

MEMORIAL TO DR. CHARLES BENJAMIN WRIGHT

The Board of Trustees records with deepest sorrow the passing of one of its members, Charles Benjamin Wright, on May 31. Charles B. Wright ever since his graduation from the Johns Hopkins Medical School has been an important factor in American medicine, first as a teacher and then as a practitioner. In recent years he has played an important role in the American Medical Association and for seven years has been a member of the Board of Trustees. So valuable have been his services that several years ago he was elected Chairman of the Executive Committee of the Board. This office he held at the time of his death. The medical profession is under many obligations to Dr. Wright for his indefatigable labors in its behalf. Charles B. Wright was cut off in his prime. That genial and lovable character will long linger in the memory of his fellow men and in the hearts of the medical profession. Our love and deepest sympathy go to Mrs. Wright and her children in their irreparable loss.

INDICTMENT OF THE ASSOCIATION

The Supreme Court of the United States has denied the petition of the Association for a writ of certiorari; hence the Association must now stand trial in the U. S. District Court for the District of Columbia. Word has just been received to the effect that representatives of the Association and the members of the administrative personnel who were indicted by an additional grand jury impaneled at the request of the Department of Justice of the United States must be in Washington on Friday morning, June 14, to make an appearance before the court. The Board of Trustees has authorized the Secretary and General Manager to enter a plea of not guilty for the Association.

CHANGE IN NAME AND IN POLICIES OF COUNCIL ON FOODS

When the Council on Foods was first established in 1929 there was a need for a body of experts to express authoritative opinions about health claims for foods. The formation of a committee to evaluate foods and the claims made for them represented a logical development of the recognition—by physicians, the general public and members of the food industry—of the expansion of nutritional knowledge by scientific and clinical investigators. The work of the Council, under the auspices of the American Medical Association, has developed rapidly but now there seems to be good reason for the Council to relinquish certain of its activities and to expand other phases of its work.

Following the passage of the new Federal Food, Drug and Cosmetic Act, standards and definitions of foods are being drawn up and ingredients of packaged foods must be declared on labels. This step is gradually eliminating one feature of the Council's activities, namely, making known the composition of processed and packaged foods. Again, the Federal Trade Commission with the great powers conferred on it by the Wheeler-Lea Amendment is empowered to police objectionable claims in the advertising of food products. Thus the Council is largely relieved of the necessity of indicating by means of its seal of acceptance those claims which are considered unobjectionable.

There remains for the Council the highly important function of expressing authoritative group opinion on foods and the nutritional claims made for them. At the present time there exists no organization in the United States which is capable of serving this purpose. While the Council plans no longer to accept many common foods for which standards of identity and composition have been established, it is still considered desirable that the Council should study and report on such products when it is considered to be in the interests of the public to do so. Further, the Council deems it necessary to retain its present policy of giving consideration to products intended for the feeding of infants or the sick and to foods which have been manipulated by the addition of vitamins, minerals or other dietary essentials with the aim of improving their nutritional value. It is proposed further that more attention be devoted to the preparation of reports on the nutritive aspects of foods and combination of foods.

Under the circumstances the Board has authorized a change in the policies of the Council and in its name so that it be called the Council on Foods and Nutrition in order to emphasize the change in the direction of its work.

Resolutions Authorizing Organization of a Committee on Medical Preparedness

The Chairman of the Board requested the Secretary to read the following Resolutions Authorizing the Organization of a Committee on Medical Preparedness, which were referred to the Reference Committee on Executive Session:

Whereas, The ravages of war again pervade many of the nations and peoples of the world; and

Whereas, The President of the United States has indicated to the nation and to the Congress the desirability of military preparedness so that our people may successfully resist attempts to substitute other forms of government for the democracy established by the Constitution of our country; and

Whereas, Organization of the nation for preparedness involves from the first the complete cooperation of the physicians of the country for:

1. Medical services in the Military, Naval, Aviation and Veteran's administrations;
2. Selection of men physically fit to serve with such agencies; and
3. Rehabilitation of those not physically qualified [to enable them] to participate in military activities; and

Whereas, Preparedness demands also

1. Medical service to the industrial workers engaged in war industries;
2. Continuance of medical care of the civilian population;
3. Education of young men to qualify them for medical service; and

Whereas, The American Medical Association now embraces in its membership more than 117,000 of the licensed physicians of the United States; and

Whereas, The headquarters of the American Medical Association have available facilities as follows:

1. Complete records of all qualified physicians in this country, with data necessary to determine largely their availability for military or other services;
2. Complete information concerning facilities for education in medicine, the medical specialties and other medical activities;
3. Complete information concerning the hospitals of the United States;
4. The necessary facilities for making prompt contact through addressing devices, periodicals and constituent bodies with all medical personnel and medical agencies; and

Whereas, Only in the headquarters of the American Medical Association, as far as is known, are such information and facilities available; and

Whereas, The American Medical Association is not only the largest but also the only organization containing in its membership qualified physicians in every field of medical practice; and

Whereas, During the World War of 1914-1918 the American Medical Association aided in making available the services of more than 60,000 physicians for military and related activities; therefore, be it

Resolved, That the House of Delegates authorize the Board of Trustees to create a Committee on Medical Preparedness, to consist of seven members of this House, with the President of the Association, the Secretary of the Association, the Secretary of the Board of Trustees and the Editor as ex officio members; and be it further

Resolved, That this Committee establish and maintain contact and suitable relationship with all governmental agencies concerned with the prevention of disease and the care of the sick, in both civil and military aspects, so as to make available at the earliest possible moment every facility that the American Medical Association can offer for the health and safety of the American people and the maintenance of American democracy.

Report of Judicial Council

Dr. George Edward Follansbee, Chairman, presented the report of the Judicial Council, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

Report of Reference Committee on Credentials

Dr. J. Newton Hunsberger, Chairman, stated that the reference committee had received credentials from Dr. W. Albert Cook and Dr. Walter A. Howard for one seat in the House of Delegates and that the committee had seated Dr. Cook. After discussion it was moved by Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. Olin H. Weaver, Georgia, and carried, that the action of the reference committee in seating Dr. Cook be sustained.

Report of Council on Medical Education and Hospitals

Dr. J. H. Musser, Acting Chairman of the Council, presented the Report of the Council on Medical Education and Hospitals as presented in the Handbook, together with the following supplementary report dealing with graduate medical schools, which was referred to the Reference Committee on Medical Education:

Principles Regarding Graduate Medical Schools

The following principles, adopted by the House of Delegates in June 1923, have been revised and are submitted to the Council for its consideration.

1. *Organization.*—A graduate medical school should be incorporated as a nonprofit institution. Its board of trustees should be composed of public spirited men or women having no financial interest in the operations of the school or its associated hospitals. The trustees should serve for fairly long and overlapping terms. If the choice of trustees is vested in any other body than the board itself, that should be clearly stated. Officers and faculty of the school should be appointed by the board.

2. *Admission Requirements.*—(*a*) A physician who does not intend to limit his practice to a specialty shall present satisfactory evidence that he is a graduate of a medical school and that he is licensed to practice in the state in which he resides. (*b*) The physician who desires to prepare himself to specialize, or who has limited his practice to a specialty, shall present satisfactory evidence that he is a graduate of a medical school approved by the Council on Medical Education and Hospitals and that he has completed at least a one year internship in a hospital approved by the Council, or the equivalent.

3. *Records.*—The graduate school shall maintain (*a*) a full and accurate record of each student's qualifications, medical degree and licensure, (*b*) internship or equivalent training, (*c*) residency or equivalent training, (*d*) attendance in school, (*e*) proficiency as appraised by (1) medical contributions, (2) research, (3) membership in county medical society or other scientific bodies, (4) examination, (5) qualifying opinion by student's teachers. In the case of study for specialty, full record of the prescribed course and duration of study with attendance and final estimate of proficiency.

4. *Supervision.*—There should be careful and intelligent supervision of the school by a dean or other executive officer who holds and has sufficient authority to carry out the ideals of present day graduate medical education.

5. *Curriculum and Grading of Instruction Offered.*—The graduate school should have its various courses designed to prepare the physician for the practice of a specialty so graded that the student, if he desires, may follow a progressive and systematic program of two or more years' duration. If at some previous time, or in other institutions, the student has satisfactorily completed certain portions of the work, he may be given credit for the same, with a proportional advanced standing. Institutions offering courses leading to restricted practice in a specialty should provide (*a*) courses in anatomy, pathology, chemistry and the other basic preclinical sciences which apply to the respective specialties, (*b*) clinics in which students personally examine patients in hospital wards and outpatient departments and follow these patients throughout their illness, (*c*) courses of operative and laboratory—cadaver—technic appropriate to each specialty, and (*d*) for those especially qualified opportunity for research work with proper critical supervisions should be provided.

Short operative courses offered in any of the clinical specialties should include a full review with diagnostic and clinical courses so arranged that they become integral parts of a complete program.

6. *Teachers.*—The graduate medical school should have a faculty well trained in and responsible for instruction in all subjects in which courses for study are announced. Facilities should be provided for essential review and advanced work in the preclinical sciences. The faculty should be organized under competent department heads.

7. *Laboratories.*—The school should possess well equipped laboratories and clinical facilities. The postmortem rate shall be in conformity to the rules for approved hospitals.

8. *Library and Museum Facilities.*—The graduate school should have a medical library under the supervision of a com-

petent librarian and staff. It should include text and reference books, and bound medical periodicals and the essential indexes. For any library, the QUARTERLY CUMULATIVE INDEX MEDICUS is essential. It should receive regularly the more important medical periodicals, the latest numbers of which are easily accessible. The school should maintain adequate museum facilities, especially in anatomy and pathology.

9. *Hospitals and Dispensaries.*—The graduate medical school should have control of a teaching hospital with adequate outpatient clinic. It should have sufficient material to enable it to provide satisfactory clinical study in the fields of medicine in which courses are offered, so that students may personally examine patients in the hospital wards and in the dispensary and make the essential laboratory examinations.

10. *Annual Announcements.*—The graduate school should publish an annual announcement and bulletins or catalogues giving detailed information in regard to its courses of instruction, with teachers and details of the laboratories, dispensaries and hospital patients. It should outline the various opportunities for study offered in both fundamental and clinical branches and list those to whom advanced degrees or certificates were granted.

11. *Advanced Degrees and Certificates.*—No advanced degree or certificate should be granted to any one who has not demonstrated by examination or otherwise proficiency in his specialty, nor to any one who has not completed at least one academic year in full time study in the institution granting the certificate.

12. *Financial Support.*—Experience has shown that it is not possible to maintain high educational standards on income from student fees alone. Other sources of financial support are deemed essential for the proper conduct of graduate medical schools and should be listed in the annual announcement.

Report of Council on Scientific Assembly

Dr. James E. Paullin, Chairman, presented the report of the Council on Scientific Assembly, which was referred to the Reference Committee on Sections and Section Work.

Report of Committee to Confer with Governmental Agencies

The Secretary stated that Dr. Irvin Abell, Chairman of the Committee to Confer with Governmental Agencies, had left his report in the hands of the Secretary because he could not be in attendance until Tuesday.

It was suggested that the report be deferred until the Executive Session, and without objection the report was passed until a later meeting of the House.

NEW BUSINESS

Resolutions Susceptible of Misrepresentation to Be Considered in Executive Session

Dr. Walter E. Vest, West Virginia, presented the following resolution, which was adopted on motion of Dr. Vest, seconded by Dr. E. G. Wood, Tennessee, and carried:

WHEREAS, Many problems of a nature critical to the life and work of the American Medical Association now concern us; and

WHEREAS, Such problems as are concerned with public relations efforts, legal difficulties, contraception and the relations of the organized medical profession to the federal administration are susceptible of misrepresentation and misunderstanding in the reflection to the public; therefore be it

Resolved, That all matters of such character be referred by the Speaker of this House of Delegates for consideration in executive session, and that, in conformance with the purpose of this resolution, each delegate who offers a resolution be requested at the outset to state the subject thereof and that the Speaker then rule, before such resolution shall be read, whether or not it be considered in executive session.

Resolutions on Conservation of Eyesight

Dr. James R. McVay, Missouri, presented the following resolutions in behalf of the Missouri State Medical Association, which were referred to the Reference Committee on Hygiene and Public Health:

WHEREAS, The term "conservation of eyesight" carries broader implications than the term "prevention of blindness"; and

WHEREAS, There is need of extending the educational program in the conservation of eyesight throughout the country; and

WHEREAS, The various constituent state medical associations of the American Medical Association should be encouraged to establish committees on the conservation of eyesight; therefore be it

Resolved, That this House of Delegates support and encourage the constituent state medical associations to establish such committees, and that the Board of Trustees of the American Medical Association be requested to appoint a committee to direct this educational program or to instruct the Bureau of Health Education to assume this responsibility based on the facts found and reported by the special committee which was appointed by the Board of Trustees in accordance with the request of the House of Delegates at the 1939 session, for the purpose of studying all phases of the problem of prevention of blindness; and be it further

Resolved, That our delegates be instructed to present this resolution to the House of Delegates of the American Medical Association at the New York session in June 1940.

Proposed Amendment to By-Laws

Dr. James E. Paullin, Section on Practice of Medicine, presented the following amendment to chapter VIII, section 1, of the By-Laws, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

Amend section 1, chapter VIII, of the By-Laws to read as follows:

SECTION 1. MEMBERSHIP.—The Standing Committees, or Councils, including the Judicial Council and the Council on Scientific Assembly, shall consist of five members, each elected for five year terms. The Council on Medical Education and Hospitals shall consist of seven members, each elected for seven years. The terms of office of the members of each council shall terminate in succession, one each year, and, except in the case of the Council on Medical Education and Hospitals, the House of Delegates shall, on the nomination of the President, elect one member each year to fill the vacancy. With respect to the Council on Medical Education and Hospitals, one member shall be elected annually by the House of Delegates on the nomination of the Board of Trustees. The members of the Council on Scientific Assembly shall be chosen, as far as practical, from ex-section officers representing different sections. The President-Elect, the Secretary of the Association and the Editor of THE JOURNAL shall be ex officio members of the Council on Scientific Assembly.

Procurement of Professional Personnel for Medical Corps of Army in Event of a National Emergency

Dr. George C. Dunham, United States Army, presented the following plan for the procurement of professional personnel for the Medical Corps of the Army in the event of a national emergency, which was referred to the Reference Committee on Executive Session:

The following is a tentative plan for the procurement of professional personnel for the Medical Corps of the Army in the event of a national emergency. This plan has been prepared by the office of the Surgeon General of the Army and is submitted to the House of Delegates of the American Medical Association for its consideration.

1. The American Medical Association to be asked to conduct a survey of the medical profession through its state and local activities.

2. The local or county societies to canvass their members to determine of those who express a willingness to serve who should be available for the military service and who, on account of their age, physical disability or commitment in civil capacities, should remain at home.

3. The county society to give to each one who expresses his willingness to serve, even though he may be selected to remain at home, a button similar to that which was designed for the Volunteer Medical Service Corps during the last war.

4. The county societies to list those who are selected for the military service according to their professional qualifications, listing as surgeons, psychiatrists and so on only those who are members in the national specialists' organizations. Also to select from those who are to remain at home qualified men for examining boards.

5. The state societies to maintain an available roster of their members.

6. The American Medical Association to maintain a numerical roster of availability by states.

7. The Medical Department of the Army to have one or more selected officers on duty at the headquarters of the American Medical Association in Chicago.

8. The War Department, Corps Areas or regional officers to call on the American Medical Association for physicians or specialists, as and when required.

9. The American Medical Association to call on the states, according to their quotas, for the physicians required.

10. The states, in turn, to call on their local societies for their quota of physicians.

In the quotas, credits would be given for sponsored units and preference would be given to reserve officers wherever their qualifications warrant.

It appears that in the event of a national emergency of great magnitude it would be very necessary to conserve the medical profession. This plan would distribute the professional load and, if properly administered, should prevent the stripping of rural and isolated communities of their necessary medical personnel.

There could be an extension of this plan to cover the training program for technicians. The same societies could conduct a survey of the teaching institutions to determine their availability and suitability for the training of such enlisted specialists as would be required. Rational medical service for civilian groups in war industries could be coordinated by the same administrative units.

Resolutions on Venereal Disease Program

Dr. J. N. Baker, Alabama, presented the following resolutions, which were referred to the Reference Committee on Hygiene and Public Health:

WHEREAS, An expanded program for the control of the venereal diseases throughout the states has been made possible by federal grants-in-aid to states to be used specifically for this purpose; and

WHEREAS, On state health departments has been placed the responsibility for the judicious and wise expenditure of such funds; and

WHEREAS, The organized medical profession of this country has likewise a responsibility in this particular problem, as it has in all other health problems affecting the nation; and

WHEREAS, Because of the magnitude and scope of any nationwide program looking to the control of the venereal diseases, the House of Delegates of the American Medical Association recognizes the need for the fullest cooperation, aid and counsel from the practicing profession; and

WHEREAS, The proper control of these diseases depends on adequate, continued treatment; and

WHEREAS, The treatment of the sick individual is the province of the practicing physician; and

WHEREAS, The modern technics employed in the treatment of the venereal diseases require a familiarity with such technics as well as a knowledge of the diseases themselves; therefore be it

Resolved, That it is the sense of this House of Delegates that such cooperation on the part of the medical profession should be freely extended and that the official health agencies, state and local, charged with the administrative responsibilities for the conduct of the program be urged to formulate plans and machinery for as full utilization as possible of such members of the local medical profession as are willing and competent to undertake the clinical management of such programs; and be it further

Resolved, That it is the sense of this House of Delegates that constituent state medical associations and component county medical societies should cooperate fully in the effort to improve the quality of clinical services to be rendered in venereal disease control programs; and be it further

Resolved, That it is the sense of this House of Delegates that a reasonable compensation should be paid physicians serving in the venereal disease clinics; and be it further

Resolved, That it is the sense of this House of Delegates that, because of the potential dangers of intravenous therapy, such medication should be administered only by a duly qualified physician.

Resolution on Military Service by Women Physicians

Dr. Samuel J. Kopetzky, New York, presented the following resolution from the American Medical Women's Association, Inc., as well as a similar resolution from the Women's Medical Association of New York City, which was referred to the Reference Committee on Miscellaneous Business:

The American Medical Women's Association, Inc., now in session at the Park Lane Hotel, respectfully requests the House of Delegates of the American Medical Association actively to consider the question of providing for its women physician members in the event of war and to approach the War Department, or proper authorities, in order to secure proper military recognition and commissions for women physicians and surgeons, so that in giving their all to their country they may be assured of the same rating and benefits of government protection that their brother colleagues enjoy.

Resolution on Legislation Having to Do with the Care of the Sick

Dr. John Z. Brown, Utah, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Resolved, That the Utah State Medical Association, having heard of the recent vote of the House of Delegates of the American Medical Association on the subject of state medicine, extends a vote of support to the officers and delegates of that Association on the principle involved; and be it further

Resolved, That it is the sense of the Utah State Medical Association that it is not incompatible with the principles of the American Medical Association to have that organization formulate and propose to the appropriate government agencies some plan whereby the proper governmental agency will compensate adequately the family physician for the care and treatment of patients in the low income brackets who are unable to pay for medical and hospital services; and be it further

Resolved, That nothing in this resolution shall be construed as suggesting or recommending any plan whereby the free choice of physician or hospital by the patient shall be jeopardized; and be it further

Resolved, That it is the sense of this Association that any plan adopted should be administered by a doctor of medicine who is trained in the diagnosis and treatment of disease and not under the supervision of a public health officer, whose special training is directed toward the prevention rather than the treatment of disease; and be it further

Resolved, That the Utah delegate to the 1940 session of the American Medical Association exert every effort to have some plan prepared and presented to the appropriate governmental agencies with a view to carrying out the intents and purpose of this resolution.

Resolution on Doctor's Day

Dr. Harvey F. Garrison, Mississippi, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, Senator Theodore G. Bilbo of the state of Mississippi introduced into the United States Senate the following resolution declaring June 22 a day to be known as "Doctor's Day," on which the public may officially recognize the services rendered by the medical profession to the people: "Resolved, etc., That the 22d day of June in each year is hereby designated, and shall hereafter be known as, Doctor's Day in commemoration of the great sacrifices and untiring efforts and devotion of the members of the medical profession in performing their duty to humanity by caring for the sick and injured in times of individual need and during periods of pestilence, war and other disasters and catastrophies. Sec. 2. The President is authorized and requested to issue annually a proclamation calling upon officials of the Government to display the United States flag on such day and inviting the people of the United States to observe such day in an appropriate manner," and

WHEREAS, This resolution was unanimously passed by the United States Senate; therefore be it

Resolved, That the House of Delegates of the American Medical Association express to the United States Senate and to Senator Bilbo its deep appreciation of this recognition.

Resolutions on Care of Needy Physicians

Dr. Charles A. Dukes, California, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The care of physicians who are in need is a subject worthy of the attention of the constituted units of organized medicine; and

WHEREAS, A serious study and survey of this problem is definitely indicated; now be it

Resolved, By this House of Delegates of the American Medical Association that the speaker of the House of Delegates be instructed to appoint a committee of three to make a study of the problem of (1) Aid to needy members of this Association and (2) Establishment of a national fund for this purpose, and to submit a report of this study with recommendations at the next annual session of the House of Delegates; and be it further

Resolved, That the committee so appointed be empowered to appoint a subcommittee of three from members of each constituent state medical association to carry on similar studies in their respective states and to report thereon through the committee of the American Medical Association.

Resolution on Blood Typing for Blood Transfusion

Dr. T. K. Gruber, Michigan, in behalf of the Michigan State Medical Society, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The value of blood transfusion in the treatment of a wide variety of disabilities is firmly established; and

WHEREAS, The usefulness of this procedure in emergencies is totally dependent on the ready availability of suitable donors; therefore be it

Resolved, That the American Medical Association and its constituent state and component county organizations formulate a plan that may be linked with the present day project of blood testing for syphilis, for widespread blood typing and classification of the general public so that suitable donors shall be available at all times in every community throughout the United States.

Resolutions on Specialists in Hospitals

Dr. Thomas A. McGoldrick, New York, presented the following resolutions, which were referred to the Reference Committee on Medical Education:

These resolutions were approved by the Medical Society of the State of New York at its 1940 annual meeting. It was there ordered that they be presented to the American Medical Association at its 1940 annual session for consideration.

Resolved, That in order better to serve the hospitals with which they are connected and to improve that service by greater cooperation and understanding, the Joint Council of Pathologists, Radiologists, Anesthesiologists and Physical Therapy Physicians of New York state recommends that all grade A hospitals shall have physicians especially trained in pathology, radiology, anesthesiology and physical medicine in charge of these departments, and that the directors of these departments shall be members of their respective medical boards with the power to vote; and be it

Resolved, That in those areas in which the foregoing specialties are not represented by specialists it shall be permissible for physicians trained in these specialties to represent the specialty on their respective medical boards.

Resolutions on Limiting Type and Extent of Services Offered by Laboratories of State Boards of Health

Dr. L. W. Larson, Section on Pathology and Physiology, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The continued growth and development of that special branch of medicine known as clinical pathology is necessary for the proper diagnosis and treatment of the sick and is essential to the science and practice of medicine; and

WHEREAS, The growth of laboratories of state boards of health has been abnormally augmented by grants-in-aid from the federal government, the effect of which is to extend these services to all citizens without regard to their ability to pay; and

WHEREAS, The excessive development of laboratory medicine by state boards of health serves as an entering wedge for state medical practice which apparently will include all medical specialties; and

WHEREAS, These practices will inevitably result in the curtailment of the practice of clinical pathology and tend to discourage young, well trained physicians from entering this essential field; be it therefore

Resolved, That the House of Delegates recommend to all state medical societies that they hold conferences with the authorities of their state boards of health with the view of limiting the type and extent of services offered by the laboratories of these organizations. Laboratory services by the state board of health laboratories should be confined to requests made by health officers and to those made by physicians whose patients find it difficult or impossible to pay the cost of laboratory services of this kind in the customary manner. In general, laboratories of the state boards of health should not provide services at taxpayers' expense to persons who are able to provide for themselves; and be it further

Resolved, That the House of Delegates authorize the Board of Trustees of the American Medical Association to undertake an educational campaign to set forth this problem to the medical profession.

Resolution on Approval of the American Foundation for Tropical Medicine, Inc.

Dr. Peter Irving, New York, presented the following resolution, which was referred to the Reference Committee on Medical Education:

WHEREAS, Tropical medicine has attracted increasing attention in the United States; and

WHEREAS, in 1934 there was created an organization known as the American Academy of Tropical Medicine; and

WHEREAS, Following that event there was organized the American Foundation for Tropical Medicine, Inc., which has elaborated a plan for the introduction of graduate students in tropical medicine from South and Central America to study in the Graduate School of Tropical Medicine at the Tulane University of Louisiana and other appropriate universities in the United States for the improvement of health in the Western Hemisphere and the interchange of cultural assets; and

WHEREAS, The American College of Physicians has voted its approval of this foundation; therefore be it

Resolved, That the American Medical Association register its formal approval of the American Foundation for Tropical Medicine, Inc.

Resolution on Military Activities

Dr. George R. Dillinger, Indiana, presented a resolution on Military Activities, which was referred without reading to the Reference Committee on Executive Session.

Resolution on Medical Service Plans

Dr. L. G. Christian, Michigan, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, Medical societies in more than eighteen states have medical service plans in operation or in an advanced stage of development; and

WHEREAS, It is of the utmost importance that organized medicine maintain a close and sympathetic interest in the administration and policies of medical service plans; and

WHEREAS, There is need for uniformity in the standards of such plans and in the methods of collecting actuarial data; and

WHEREAS, There are indications, if medical service plans do not have the benefit of coordinated leadership, that agencies other than medical may assume the direction of such plans; therefore be it

Resolved, That the House of Delegates of the American Medical Association request the Board of Trustees to direct the Bureau of Medical Economics and the Committee on Medical Care to take appropriate steps toward the coordination of medical service plans and to arrange for the collection of information and experience that may be useful in developing and maintaining sound practices.

Address of Surgeon General James C. Magee

Dr. Arthur W. Booth, Chairman of the Board of Trustees, presented Dr. James C. Magee, Surgeon General of the United States Army, who addressed the House as follows:

Mr. Chairman and Gentlemen:

I am not in any sense prepared to make a speech. I had not expected to stand here at all. On this sudden and pressing invitation, I will have to impose on you for a moment.

I realize the significance and great importance of this meeting, particularly in reference to the thought that pervades the minds of all of us with reference to the disturbed state of world affairs.

Representatives of my office have already made some proposals, I understand, to the House of Delegates. As Surgeon General of the Army, I know that in the event of actual mobilization and the necessity for military effort on the part of our country, this is the organization on which we must rely for support when the occasion demands.

This is my first appearance before the House of Delegates. I am exceedingly glad to be here and I hope to be on closer terms with a great many of you as time goes on.

Report of Board of Trustees

Dr. Arthur W. Booth, Chairman of the Board of Trustees, read the following Report of the Bureau of Medical Economics on fee schedules, which was referred to the Reference Committee on Miscellaneous Business:

The Bureau of Medical Economics has studied the fee schedules reported by county medical societies and submits the following report, as requested by the House of Delegates at the San Francisco session in 1938:

Special purposes often require the adoption of fee schedules in connection with the administration of medical care. Under such circumstances fee schedules do not violate the Principles of Medical Ethics.

When it becomes necessary to adopt fee schedules, the purpose for which such schedules are designed, the body which is to pay for the services, the ability of patients to pay, the length of time over which the schedules are to remain effective, the economic conditions in the area involved and the nature of the medical services to be provided must be considered in arriving at the values to be ascribed to the schedule items.

Ordinarily, fee schedules should provide for sufficient elasticity to permit their adaption to wage levels, specialized services and variations in the costs of providing medical care in urban and rural districts.

The adoption of fee schedules is the function of component units, with the advice and assistance, if desired, of the state medical societies of which they are a part.

Resolution on Military Status of and Pay to Physical Therapy Technicians

Dr. Rollo K. Packard, Illinois, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Resolved, That the American Medical Association express its approval of Senate Bill 1615, introduced by Senator Sheppard, chairman of the Senate Military Affairs Committee, and House Bill 8542, introduced by Mr. May, chairman of the House Military Affairs Committee. These bills give the same military status and pay to the physical therapy technicians who are now in the Army or who will come into the Army during an emergency as the Army nurses now have.

Resolution Concerning Certain Objectionable Practices of Insurance Companies

Dr. John H. Fitzgibbon, Oregon, presented a resolution concerning certain objectionable practices of insurance companies, which was referred without reading to the Reference Committee on Executive Session.

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by various delegates and carried, the House recessed at 2:10 p. m., to reconvene at 9:30 a. m. Tuesday, June 11.

(To be continued)

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—H. R. 9209, the Military Establishment Appropriation Bill for the fiscal year of 1941, as passed by the House and Senate, carries an appropriation of $130,000 for the preparation of plans for a new building in which to house the Surgeon General's Library. On June 10, when the conference report on the bill was before the House, Representative Collins, Mississippi, sought to amend the bill so as to make available an additional sum of $470,000 for the acquisition of a site for the building. This amendment was rejected on a point of order. A subcommittee of the Senate Committee on Education and Labor recently concluded hearings on S. 3461, a bill introduced by Senator Murray, Montana, proposing to provide for the general welfare by enabling the several states to make more adequate provisions for the control and prevention of industrial conditions hazardous to the health of employees. The bill designates the Department of Labor as the administrative agency. On June 13 the committee discussed the bill but took no action with respect to it. H. J. Res. 551 has been signed by the President, making effective as of June 30 Reorganization Plan No. IV, transferring to the Federal Security Agency the Food and Drug Administration, except those functions relating to the administration of the Insecticide Act of 1910 and the Naval Stores Act, which will remain in the Department of Agriculture.

DISTRICT OF COLUMBIA

Changes in Status.—S. 2013 has passed the Senate and House, proposing to amend the Code of the District of Columbia to provide for the organization and regulation of cooperative associations. S. 3720 has been reported to the Senate, with amendments, creating a Board of Funeral Directors and Embalmers. H. R. 7865 has been reported to the Senate, proposing to amend the laws regulating the practice of dentistry. H. R. 8692 has been reported to the Senate, proposing to amend existing laws regulating the practice of podiatry in the District of Columbia.

STATE MEDICAL LEGISLATION

Louisiana

Bills Introduced.—H. 934 proposes to prohibit the retail sale or distribution, except on the written order of a physician, dentist or veterinarian, of amytal, luminal, veronal, barbital, acid diethylbarbituric, paraminobenzene sulfonamide, sulfanilamide, sulfamide, prontylin, prontosil, neo-prontosil, neo-prontylin, sulfamethylthiazole, dinitrophenol, edimalin, sulfonamid, cincophen, thyroid, aminopyrine or any of their salts or derivatives, or compounds of the foregoing substances, or any preparation or compound containing any of the foregoing substances, or their salts, derivatives or compounds, or any registered, trade-marked or copyrighted preparation or compound registered in the United States patent office containing more than 1 grain to the avoirdupois or fluid ounce of the above substances. H. 508 proposes to require every physician who attends a woman for conditions relating to pregnancy to offer to take or have taken a sample of her blood at the time of first examination, if no objection is made thereto by the woman, and to submit such sample to an approved laboratory for a standard test for syphilis. The bill proposes that a standard test for syphilis be a test approved by the American Board of Pathology and must be made by a laboratory operated by a licensed physician and pathologist as recognized by the American Board of Pathology. All persons other than physicians permitted by law to attend pregnant women but not permitted to take blood samples are to be required to cause a sample of blood of the woman to be taken by a licensed physician, if no objection is made thereto by such woman, and submitted to an approved laboratory for a standard test for syphilis.

WOMAN'S AUXILIARY

Michigan

A joint meeting of the Gratiot-Isabella-Clare County Medical Society and its auxiliary was held in Alma recently with ninety persons in attendance. Mr. William J. Burns, executive secretary of the Michigan State Medical Society, spoke on "Opportunities for the Doctor's Wife."

Dr. Nathan Sinai, of the University of Michigan, spoke on "Highways and Horizons of Medicine in This Changing World" at a recent meeting of the auxiliary to the Wayne County Medical Society in Detroit. Drs. J. Milton Robb and Edward D. Spalding spoke on the Wagner Health Bill at the December meeting.

Minnesota

More than 10,000 papers on the subject "Youth's Health Security" were written by Minnesota High School students in the Christmas Seal High School Radio project which is conducted under the auspices of the Minnesota Public Health Association and the Woman's Auxiliary of the Minnesota State Medical Association. A total of 102 talks, selected from the 10,000, were submitted in the state contest. Writers of six papers, selected from the 102 entries, presented them over radio station WCCO.

The auxiliary to the Clay-Becker Counties Medical Society sponsored a sale of articles made by the patients at Sand Beach Sanatorium recently. The sum of $78.85 was made for the patients. The auxiliary has placed *Hygeia* in all public libraries of the county. Dr. W. L. Burnap spoke on the Wagner Bill at the joint meeting of the Red River Valley Medical Society and the woman's auxiliary in Crookston recently.

New Jersey

The auxiliary to the Atlantic County Medical Society met in Atlantic City January 12. Dr. Harold Davidson spoke on cancer. At an open meeting at the Woman's Club, January 16, Dr. Harold Davidson spoke on cancer and Mrs. A. Haines Lippincott, of Camden, spoke on the Woman's Field Army of the American Society for the Control of Cancer.

The auxiliary to the Camden County Medical Society met in Woodbury January 16. Miss Jane C. MacNeal, director of social service of the Pennsylvania Hospital, Philadelphia, and Rev. Robert D. Morris, supervisor of the theological service of the Pennsylvania Hospital, spoke on "Medical Social Work."

The auxiliary to the Union County Medical Society met in Rahway January 16. Dr. Elizabeth Ford Love spoke on child behavior problems.

The board of directors of the auxiliary to the Medical Society of New Jersey met in Trenton January 8. Dr. Hammel Shipps reviewed recent progress in medicine and Dr. Thomas K. Lewis discussed state medicine.

New York

The auxiliary to the Cayuga County Medical Society met in Auburn January 18. Dr. George B. Adams discussed public health work in the county.

The auxiliary to the Kings County Medical Society held its January meeting in Brooklyn. Dr. George Merrill spoke on "Allergy"; an article from *Hygeia* was reviewed and plans were made for securing funds for the Physicians' Home.

Dr. Raymond Graham spoke on "The History of Medicine in Onondaga County" at a recent meeting of the auxiliary to the county medical society in Syracuse.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

DISTRICT OF COLUMBIA

Mr. Cummings Endows Research on Heart Disease.—Homer S. Cummings, LL.D., formerly attorney general of the United States, has given $1,200 for five years to George Washington University, beginning in July, to establish a research clinic for the treatment of heart disease. The gift is to be known as the Cecilia Cummings Research Fund in honor of Mr. Cummings' wife who died from a heart disease in August 1939. It will be under the supervision of Dr. Paul F. Dickens, clinical professor of medicine, George Washington University School of Medicine, Washington.

IDAHO

Society News.—A recent meeting of the North Idaho District Medical Society at Lewiston was addressed by Drs. Richard J. Bailey and William N. Myhre, Spokane, Wash., on "Recent Advances in Treatment of Common Skin Diseases" and "Treatment of Heart Disease" respectively.——The annual spring meeting of the Southwestern Idaho District Medical Society in Boise, April 17-18, was addressed by Drs. Howard C. Stearns on endometriosis; Joyle Dahl, treatment of syphilis, and Morris L. Bridgeman, pediatrics. Clinics on pediatrics, dermatology, obstetrics and gynecology formed a part of the session. The speakers are members of the faculty of the University of Oregon Medical School, Portland. The program was under the auspices of the state division of public health.

ILLINOIS

County Society Celebrates Anniversary.—The Pike-Calhoun County Medical Society celebrated the fortieth anniversary of its founding at a meeting in Pittsfield, April 19. Dr. James H. Hutton, Chicago, spoke on "The People, the Physicians and the Politicians" and Dr. Harold M. Camp, Monmouth, "Medicine Accepts the Challenge." A symposium on the treatment of peptic ulcer was presented by Drs. Thomas D. Masters, Robert J. Patton and Charles L. Patton, Springfield.

Chicago

The New Wesley Hospital.—Ceremonies marking the laying of the cornerstone of the new Wesley Memorial Hospital were held May 26. Franklyn Bliss Snyder, LL.D., president of Northwestern University, and Dr. Raymond W. McNealy, chief of staff of the hospital, were among the speakers. The hospital is planned as the first unit in a group of buildings to be known as the George Herbert Jones Hospital Center. Mr. Jones, founder and former president of the Inland Steel Company, in 1937 gave about $2,000,000 in stock to finance the new hospital. In February of this year he gave additional shares of stock valued at more than $1,000,000. The site is at Fairbanks Court and Superior Street, adjacent to the campus of Northwestern University. The building will be twenty stories high with a capacity of 525 beds. While it will have facilities for charity patients, the accommodations are designed for persons of moderate means. The new Wesley Memorial Hospital is affiliated with Northwestern University Medical School.

KANSAS

Personal.—Dr. Ralph M. Fellows has announced his resignation as superintendent of the state hospital at Osawatomie, effective May 30. He has accepted a position in the Milwaukee County Hospital for Mental Diseases, Wauwatosa, the state journal reported.——Drs. Mirl C. Ruble, Parsons, and Henry E. Haskins, Kingman, have been reappointed to the Kansas State Board of Medical Registration and Examination.

Society News.—Dr. George F. Gesell, Wichita, recently discussed "Evaluation of Ocular Discomfort" before the Cowley County Medical Society in Winfield.——The Montgomery County Medical Society was addressed in Coffeyville, April 19, by Dr. Wilson A. Myers, Kansas City, Mo., on "Heredity Transmission of Familial Diseases."——The Wyandotte County Medical Society was addressed in Kansas City, May 21, by Drs. Harry W. King on "Acute Cholecystitis and Anomalies of the Bile Passages" and John H. Luke, "Chemotherapy." Dr. Logan Clendening, Kansas City, Mo., discussed "Medical Literature and the Modern Practice of Medicine" before the society, May 7. The society was addressed, April 16, by Drs. Clarence A. Gripkey, Kansas City, on "Treatment of Thyroiditis"; Lewis G. Allen, Kansas City, "When Is a Colles' Fracture Reduced"; Mahlon H. Delp, Kansas City, Mo., "Treatment of Coronary Occlusion,'" and Oscar W. Davidson, Kansas City, "Urologic Treatment of Hypertension."——A symposium on carcinoma of the stomach was presented before the Shawnee County Medical Society in Topeka, May 6, by Drs. Floyd C. Taggart, Arthur K. Owen and William M. Mills.

MASSACHUSETTS

State Medical Election.—Dr. Walter G. Phippen, Salem, was reelected president of the Massachusetts Medical Society at its recent annual meeting in Boston. Dr. Alexander S. Begg and Charles S. Butler, Boston, were reelected secretary and treasurer, respectively. Dr. Frank R. Ober, Boston, was elected vice president.

Charity to Correct Speech Defects.—The Institute for Speech Correction, Inc., has recently been organized to give instruction in overcoming stammering, lisping and other speech defects exactly at cost. It has taken over the Boston Stammerers' Institute, which according to the *New England Journal of Medicine* was the oldest school of its kind in America, having been founded in 1867. Arrangements have been made with Emerson College whereby adequately supervised advanced students in speech pathology will instruct without charge any pupil at the institution who, on recommendation of his family physician, cannot pay for his lessons. Samuel D. Robbins, permanent secretary of the American Speech Correction Association and professor of psychology at Emerson College, has been elected managing trustee. He was for twenty-five years director of the Boston Stammerers' Institute.

New School of Dental Medicine at Harvard.—Harvard University will inaugurate in 1941 an entirely new five year course in dental education, it was announced June 16. The course, which will combine the basic knowledge and skills of both medicine and dentistry, is designed to train new types of scientific workers for the attack on dental disease. The new development has been made possible by the gift of $650,000 from the Carnegie Corporation, $400,000 from the Rockefeller Foundation and $250,000 from the John and Mary R. Markle Foundation. A balance of $250,000 bringing the total to $1,550,000 is required to fulfil the program. The president and fellows of Harvard College have also transferred to the resources of the school of dental medicine $1,000,000 tentatively placed at the disposal of the dental school ten years ago. The dental school will be renamed the Harvard School of Dental Medicine. Dental students will register in both the school of dental medicine and in the Harvard Medical School, taking three and one half years of the same medical courses as other students in the Harvard Medical School and in addition one and one half years of specific dental training. Graduates will receive both the M.D. and D.M.D. degrees. Admissions to the school of dental medicine will be governed by the same standards and the same committee which govern admissions to the Harvard Medical School. The last class to enter the present four year dental curriculum at Harvard will be admitted this coming September and the new program will go into operation in the fall of 1941. Harvard, the first university in America to establish a dental school, thus becomes the first university to institute this particular plan in the development of dental and medical education.

MICHIGAN

Annual Fracture Day.—The second annual fracture day, sponsored by the Flint regional fracture committee, was held at Hurley Hospital, Flint, May 15. The speakers were:

Dr. Hardie B. Elliott Jr., Head Injuries.
Dr. James A. Spencer, Management of Burns.
Dr. Myron W. Clift, Pathologic Fractures.
Dr. Leon M. Bogart, Emergency Treatment of Fractures.
Frederick C. Thorold, D.D.S., Fractures of the Jaw.
Dr. George J. Curry, Management of Long Bone Fractures.
Dr. Donald R. Brasie, Care of Traction Apparatus.
Dr. Harold W. Woughter, Carpal Bone Fractures.

MINNESOTA

Clarence M. Jackson Lecture.—Dr. Walter C. Alvarez, Rochester, delivered the seventh annual Clarence M. Jackson lecture, April 26, at the University of Minnesota. His subject was "Functional Gastro-Intestinal Disturbances." The lecture is sponsored by the Minnesota chapter of Phi Beta Pi Medical Fraternity.

Personal.—A special program was offered by the Luverne Rotary Club, April 1, to mark the fiftieth anniversary of Dr. Charles O. Wright in the practice of medicine.——Dr. Bernard H. Simons has been named health officer of Chaska.——Dr. Bernard A. Watson has resigned as head of the student health service at the University of Minnesota, Minneapolis, to join the staff of the Battle Creek Sanatorium, Battle Creek, Mich.

Abortionist Sentenced.—Mrs. Della Mostert, aged 60, was sentenced to a term of from two to eight years at hard labor in the Women's Reformatory at Shakopee, following her plea of guilty to an information charging her with the crime of abortion. The statutory penalty for criminal abortion is not to exceed four years, but the sentence in this case was doubled because of a previous conviction in 1936 for a similar offense. The recent investigation disclosed that Mrs. Mostert had performed an abortion on a 14 year old Negro girl, May 8.

NEW YORK

Society News.—Dr. Paul W. Beaven, Rochester, recently addressed the Chautauqua County Medical Society in Fredonia on "Abdominal Pains in Children."——Dr. George Douglas L. Taylor, Montreal, addressed the Franklin County Medical Society in April on "Arthritis and Rheumatism, Diagnosis and Treatment."——Drs. Samuel A. Thompson and Milton J. Raisdeck, New York, addressed the Schenectady County Medical Society in Schenectady recently on "Surgical Treatment of Coronary Artery Disease with Special Reference to Cardiopericardiopexy" and "Selection and Postoperative Management of Patients in the Surgical Treatment of Coronary Disease" respectively.——Dr. Harry L. Segal, Rochester, addressed the Wayne County Medical Society, Lyons, in April on "Management of Bleeding Ulcers."

Medal for Service to Community.—Dr. John R. Williams has been awarded the Albert David Kaiser Medal of the Rochester Academy of Science "for service to the community and to the medical profession." The citation stated that Dr. Williams "has been the leading spirit, guide and director in the establishment of the Medical Museum in the Rochester Academy of Medicine, which from its beginning has maintained a high standard of educational value for the medical profession and the public. This museum, a new department of academy activity, has already brought into active participation a large number of the medical profession who formerly had no opportunity to take part, as individuals, in the problems of education which face the medical profession." Dr. Williams graduated at the University of Michigan Medical School, Ann Arbor, in 1903.

Typhoid Carrier for Forty-Nine Years.—The New York State Department of Health reported, May 12, the case of a typhoid carrier, "Typhoid Sally," who, according to *Health News*, has been a carrier for forty-nine years. The condition of the woman, a cook, was discovered in 1925 when health officers investigated an outbreak of typhoid in a hotel where "Sally," aged 57, was working in the kitchen. Her case history disclosed that when she was 23 years of age she suffered a severe illness which was treated as malaria but which physicians later believed to be typhoid. A few years later the woman was found on a dairy farm when her husband complained to the health department of "a typhoid scare" and asked to have milk from his farm tested. "Sally" was cautioned against the handling of milk as well as of food. In 1928, health authorities investigated another case of typhoid and learned that "Sally" had been preparing food again. By 1939 eleven cases were traced to her and she subsequently was convicted of a violation of the state sanitary code and was fined $25.

Dr. Corner Receives First Squibb Award.—Dr. George W. Corner, professor of anatomy and curator of the medical library, University of Rochester School of Medicine, was presented at a dinner June 10 with the first E. R. Squibb & Sons Award for his contributions to endocrinology. The award is the sum of $1,000 and a scroll provided by the association. Dr. Corner was recently appointed director of the embryologic laboratory of the Carnegie Institution. He will begin his new work in Baltimore July 1. Speakers at the dinner when the prize was presented included Philip E. Smith, Ph.D., professor of anatomy, Columbia University College of Physicians and Surgeons, New York, and Dr. Elmer L. Sevringhaus, professor of medicine, University of Wisconsin Medical School, Madison, chairman of the committee which drew up the regulations for the award. Dr. Corner first worked out the relation of the corpus luteum to the sex cycle in detail in the mammal (sow). He later showed that corpus luteum extract in the ovariectomized rabbit could cause progestational (premenstrual) development of the uterus and maintain pregnancy. His early experiments with Dr. Willard M. Allen led to the isolation of pure corpus luteum hormone (progesterone). In 1923 he showed by studies on the monkey that menstruation could occur without ovulation. He was the first to show that estrogens may delay the menstrual cycle.

New York City

Professors Appointed.—Dr. Wesley C. Bowers, director of the ear, nose and throat department of St. Luke's Hospital, has been named clinical professor of otolaryngology at Columbia University College of Physicians and Surgeons and Nicholas Kopeloff, Ph.D., research bacteriologist at the New York State Psychiatric Institute, has been appointed assistant professor of bacteriology. Dr. Bowers graduated from Columbia in 1908 and Dr. Kopeloff took his Ph.D. degree at Rutgers University in 1917.

Degree of Doctor of Public Health.—The degree of doctor of public health has been established at the DeLamar Institute of Public Health, Columbia University College of Physicians and Surgeons, to meet the demand for specialized training in the field. According to *Science*, the large expansion of public health activities and the increase in federal, state and local appropriations for such programs are creating many new positions which call for specialized education of a high order. The degree has been introduced at Columbia as part of the program of the institute to supply qualified physicians to fill these posts. Students who wish to matriculate for the degree must be graduates of an approved medical school and have served an internship of at least one year in a recognized hospital. The program of studies for the degree includes two years of graduate work, one of which must be spent at the institute. If the student chooses, permission may be granted to do one year of field work in some locality other than New York.

Dr. Wood Made Director Emeritus.—Dr. Francis Carter Wood has been made director emeritus of the Institute of Cancer Research at Columbia University College of Physicians and Surgeons. He will continue in private practice. It was also announced that the institute has been converted into the department of cancer research of the medical school, with Dr. William H. Woglom, associate professor of cancer research, as acting executive officer of the department. Dr. Wood, an Ohioan, graduated at Columbia in 1894 and has been a member of its teaching staff since 1896, becoming professor and director of the Institute of Cancer Research in 1912. Dr. Woglom was born in Brooklyn and received his degree in medicine at Columbia in 1901. He was associated with the city department of health, 1908-1909; served as assistant to the director, Imperial Cancer Research Fund, London, England, 1911-1912, and assistant professor of cancer research at the Columbia institute from 1912 to 1917, when he was made associate professor of cancer research at the medical school.

Dr. Goldwater President of Associated Hospital Service.—Dr. Sigismund S. Goldwater has accepted the presidency of Associated Hospital Service of New York, sponsor of the "three cents a day" plan. He will continue to serve as commissioner of hospitals of the city until relieved by the mayor. Mr. David H. McAlpin Pyle, chairman of the board and vice president of Associated Hospital Service, has been acting as president. He will continue as chairman of the board. The service is a nonprofit organization and now has more than a million and a quarter subscribers in seventeen counties in New York State, including the metropolitan area. The "three cents a day" plan was organized five years ago. Dr. Goldwater graduated at University and Bellevue Hospital Medical College, New York, in 1901. He served as superintendent of Mount Sinai Hospital from 1903 to 1916 and as a director from 1917 to 1929. He was commissioner of health of the city of New York in 1914 and 1915, becoming consultant in health and hospital administration to the board of estimate in 1916 and commissioner of the department of hospitals in 1934. Dr. Goldwater was president of the American Hospital Association in 1908 and of the American Conference of Hospital Service from 1924 to 1926.

OHIO

State Medical Election.—Dr. Harry V. Paryzek, Cleveland, was chosen president-elect of the Ohio State Medical Association at its annual session in Cincinnati, May 14-16, and Dr. William M. Skipp, Youngstown, was installed as president.

Society News.—Dr. John D. Garvin, Pittsburgh, addressed the Summit County Medical Society, Akron, May 7, on "Changing Concepts of Peptic Ulcer."——Dr. John M. Sheldon, Ann Arbor, Mich., addressed the Academy of Medicine of Toledo and Lucas County, May 10, on "Common Allergic Manifestations and Their Treatment." Dr. Samuel J. Levin, Detroit,

addressed the academy, May 17, on "Allergic Dermatoses." Dr. Raymond H. Quade, Toledo, was the speaker, May 24, on "Role of Surgery in Treatment of Hypertension."——Clarence C. Little, Sc.D., Bar Harbor, Maine, addressed the Academy of Medicine of Cleveland, May 17, on "Recent Advances in Cancer Research." The academy held an art and hobby exhibit at this meeting.——Dr. Morris Edward Davis, Chicago, addressed the Montgomery County Medical Society, Dayton, May 17, on "Diagnosis and Treatment in Bleeding Latent Pregnancy."

OKLAHOMA

State Medical Election.—Dr. Finis W. Ewing, Muskogee, was named president-elect of the Oklahoma State Medical Association at its forty-eighth annual session in Tulsa, May 6-8. Dr. Henry H. Turner, Oklahoma City, was installed as president. Dr. William A. Tolleson, Eufaula, was elected vice president.

Physician Honored.—On the fiftieth anniversary of his graduation from medical school, Dr. Joseph S. Fulton, Atoka, was recently honored in a ceremony in McAlester as a part of the meeting of the South Eastern Medical Society. Dr. Fulton was presented with a bronze plaque bearing the inscription "Joseph Samuel Fulton, M.D., 1890-1940. Fifty Years of Service to Humanity and Organized Medicine." Dr. Fulton is at present a councilor of the state association. He became a member of the Indian Territory Medical Association in 1891 and has held office in the state association continuously for twenty-five years. He has missed only two meetings of the state association since its organization in 1906.

PENNSYLVANIA

District Meeting.—The Eighth Councilor District Medical Society held its annual meeting in Warren, June 5. Dr. A. Follmer Yerg, Warren, president of the Warren County Medical Society, gave the address of welcome. Participating in a symposium on diabetes were Drs. Belford C. Blaine, Pottsville; George Booth, Pittsburgh; Frank A. Evans, Pittsburgh, and Edward W. Alton Ochsner, New Orleans. At this meeting testimonial certificates from the Medical Society of the State of Pennsylvania were presented to the following physicians in the eighth councilor district having practiced fifty years:

Dr. Myron A. Bailey, Jamestown, Mercer County, fifty-one years.
Dr. Michael V. Ball, Warren, Warren County, fifty-one years.
Dr. Otis S. Brown, Warren, Warren County, fifty-four years.
Dr. Burg Chadwick, Smethport, McKean County, fifty-two years.
Dr. Glennis E. Humphrey, Cambridge Springs, Crawford County, fifty-one years.
Dr. Hugh Jameson, Titusville, Crawford County, fifty-one years.
Dr. Andrew J. Mitchell, Sharon, Mercer County, fifty-two years.
Dr. Hiram B. Russell, Sheffield, Warren County, fifty years.
Dr. Monroe T. Smith, Warren, Warren County, fifty years.

The woman's auxiliaries of the district also met in annual session at this time.

Philadelphia

"Medicinal Garden" Dedicated.—A "Medicinal Herb Garden" was formally opened in the "back yard" of the College of Physicians, May 23. A tea and inspection of the garden with its growing herbs marked the event. Newspapers reported that it was not until the college moved to its present quarters that the dream of one of its founders, Dr. Benjamin Rush, was realized with the development of a well planned medicinal plant garden. Dr. Rush was said to have suggested at one time the need for a medical library and a medicinal herb garden. An ivy covered brick wall encloses the garden, and planting centers about an astrolabe, which is the gift of Mrs. Alfred Stengel.

Society News.—Speakers before the Philadelphia County Medical Society, May 8, were Drs. John R. Paul, New Haven, Conn., on "Recent Developments in the Epidemiology of Poliomyelitis"; Henry F. Hunt, Danville, "Brucellosis," and Hobart A. Reimann, Philadelphia, "Spotted Fever in Southeastern Pennsylvania." The society held a special meeting, May 2, in observance of Child Health Week, with discussions of immunization, nutrition of the child, habits and training and a panel discussion followed by questions from the audience. The public was invited to this meeting.—— Dr. Robert B. Osgood, Boston, gave the Nathan Lewis Hatfield lecture of the College of Physicians of Philadelphia, May 1, on "The Medical and Social Approaches to the Problem of Chronic Rheumatism."—— Drs. Louis Kaplan and James A. Lehman addressed the Philadelphia Academy of Surgery, May 6, on "Observations on the Relationship of the Scalenus Anticus to Shoulder Pain" and "Prevention of Complications in Thyroid Surgery" respectively.

The Annual Thomas McCrae Award.—Announcement is made of the Thomas McCrae Award to be given annually at the Pennsylvania Hospital, Philadelphia, to perpetuate the memory of the late Dr. Thomas McCrae and to encourage clinical investigation. All members of the professional staff of the Pennsylvania Hospital, except chiefs of service and directors of departments, are eligible to compete for the $100 award. In case of co-authorship the award is to be divided among the eligible candidates submitting the most worthy original observations made at and published from the Pennsylvania Hospital. The first award will be given for publications appearing in 1940. Four reprints of each publication to be considered must be submitted to the committee before January 15 of each year, the award to be presented at a special scientific meeting in March of each year. The award committee will consist of three members, two of whom shall be selected from two outside institutions and have no official connection with the Pennsylvania Hospital. Dr. McCrae, who died in 1935, had been professor of medicine at Jefferson Medical College of Philadelphia from 1912 until his death and concurrently physician to the Pennsylvania and Jefferson hospitals. He was chairman of the Section on Practice of Medicine, American Medical Association, 1914-1915.

TENNESSEE

Society News.—Dr. William Wesley Wilkerson Jr., Nashville, was elected president of the Tennessee Academy of Ophthalmology and Otolaryngology at the recent annual meeting in Chattonooga. Dr. James V. Hodge, Kingsport, was elected vice president and Dr. William D. Stinson, Memphis, reelected secretary.——Drs. Burnett W. Wright and John Howard King, Nashville, addressed the Nashville Academy of Medicine and the Davidson County Medical Society, Nashville, May 14, on "Radical Prostatectomy for Carcinoma" and "Neurodermatitis" respectively.——Speakers at a meeting of the Dyer, Lake and Crockett Counties Medical Society, Dyersburg, May 1, were Drs. James B. Cochran, Dyersburg, on "Liver Abscess"; James Wesley McKinney, Memphis, "Corneal Transplantation and Eye Conditions in General Practice," and Thomas M. Jordan, Alamo, "Syphilis in General Practice."—— Dr. Hal McCluney Davison, Atlanta, Ga., addressed the Chattanooga and Hamilton County Medical Society, April 26, on "Neuroses from the Standpoint of General Medicine."——Dr. John S. Freeman, Springfield, addressed the Robertson County Medical Society, Donelson, April 16, on typhus fever.——Dr. Byrl R. Kirklin, Rochester, Minn., addressed the Memphis and Shelby County Medical Society, April 16, on "Bleeding Lesions of the Gastrointestinal Tract."——Dr. Ernest R. Zemp, Knoxville, addressed the Knox County Medical Society, Knoxville, April 30, on "The Use of Diuretics in Bright's Disease."

VERMONT

New England Obstetrical Meeting.—The spring meeting of the New England Obstetrical and Gynecological Society was held at Burlington, June 12. Clinics were conducted at the Mary Fletcher Hospital. The program also included a symposium on pelvic trauma and relaxations with the following speakers, all from Burlington:

Dr. Herbert A. Durfee, Obstetrical Conservation of the Birth Canal; Episiotomy, Secondary Repairs.
Dr. Benjamin F. Clark, Restoration of the Birth Canal; Anterior and Posterior Plastic Operations, and the Kennedy Operation for Urinary Incontinence.
Dr. Edward D. McSweeney, Prevention and Treatment of Retroversion.
Dr. Oliver N. Eastman, Surgical Cure of Uterine Prolapse.

WASHINGTON

Refresher Course in Obstetrics.—Drs. Harold M. Teel, instructor of obstetrics and maternal health, Harvard School of Public Health, Boston, and Dr. Charles F. McKhann, associate professor of pediatrics and communicable diseases at Harvard, will deliver refresher lectures in obstetrics in Seattle, July 8, according to the *Bulletin* of the King County Medical Society.

Society News.—Dr. Edward C. Rosenow, Rochester, Minn., addressed the King County Medical Society, Seattle, at a special meeting, May 28, on "Focal Infections." At a regular meeting, June 3, the speakers were Drs. Edward A. LeCocq, on "Analysis of End Results in the Nailing of Fracture of the Neck of the Femur"; Louis H. Edmunds, "Repair of Skin Defects Associated with Fractures and Bone Lesions," and Darrell G. Leavitt, "Painful Feet: Fundamental Principles in Diagnosis and Treatment."——Dr. George W. Cornett, Yakima, was elected president of the Washington State Radiological Society at the annual meeting in Seattle, May 3, and Dr. Ken-

neth J. Holtz, Seattle, secretary. —— Drs. Paul Bailey and Roger H. Keane, Portland, Ore., addressed the Cowlitz County Medical Society, Longview, in April on the use of the bronchoscope and a new type of gastroscope.

GENERAL

Request Letters Written by Dr. Abel.—The letters and papers of the late Dr. John J. Abel, professor emeritus of pharmacology, Johns Hopkins University School of Medicine, Baltimore, have been deposited in the Institute of the History of Medicine at the university for cataloguing. The institute would welcome any letters written by Dr. Abel prior to 1915 and will return them promptly after they have been transcribed. Please communicate with Miss Helen T. Konjias, 1900 East Monument Street, Baltimore.

American Physiotherapy Association.—The nineteenth annual convention of the American Physiotherapy Association will be held at the Hotel Biltmore, New York, June 23-28. Among the New York speakers will be:

Dr. Irving S. Wright, New York, Pathology of Peripheral Vascular Diseases.
Dr. William Bierman, New York, Treatment of Peripheral Vascular Diseases.
Dr. Barbara B. Stimson, New York, Fractures.
Drs. Robert Lee Patterson Jr., Kerwin Armand Fischer and Florence K. Winter, B.S., New York, Erb's Palsy.
Dr. William Benham Snow, New York, Electrical Muscle and Nerve Testing.

The program also includes round table discussions on cerebral palsy and education, scoliosis clinic, and symposium on arthritis.

Home Study Courses in Ophthalmology and Otolaryngology.—The American Academy of Ophthalmology and Otolaryngology announces the establishment of home study courses in the fundamentals of ophthalmology and otolaryngology, to begin August 1. Any graduate physician is eligible who has completed a rotating internship or its equivalent, who has committed himself in writing to the secretary of the academy that he plans to enter the specialties and who plans to take the examination of one of the special boards when he is prepared. An applicant may register for courses in only one of the specialties. The fee is $10. Registration must be made through the executive secretary of the academy, Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, before July 1.

Enforcement of Standards for Surgical Catgut Postponed.—On the recommendation of the Committee of Revision of the U. S. Pharmacopeia XII and with the approval of the board of trustees, the enforcement of the standards for surgical gut, which were announced in the second supplement to the U. S. Pharmacopeia XI, are postponed until January 1. These standards were to become official July 1 but, because of the discovery that considerable stocks of surgical gut, conforming to the new pharmacopeial standards with respect to their diameter, tensile strength and sterility but not labeled in accordance with the new official requirements, were still in the hands of dealers, the action herein announced was taken. Since this surgical gut could be used with entire safety it was deemed unnecessary to render the stock unsalable and therefore cause a large financial loss.

Experiments on Five Day Treatment of Syphilis.—The American Social Hygiene Association, New York, has been asked to gather and keep available information on the intravenous drip method of treatment of syphilis. The association requests all physicians and hospitals carrying on experiments with this method of treatment of syphilis to send it brief information regarding the following points:

1. Name of hospital or other institution.
2. Name of principal physician in charge of the intravenous drip study.
3. Type of case or cases of syphilis treated by the intravenous drip method.
4. Name of drug or drugs used (*a*) by the intravenous drip method, (*b*) by any other method before, during or after intravenous therapy. (Mention any specific therapy used.)
5. Routine laboratory work done on cases of syphilis treated by the intravenous drip method.
6. Usual number of hours of intravenous drip treatment per day per patient.
7. Usual number of days of intravenous drip treatment per patient.
8. Any other pertinent facts.

The association will, so far as possible, answer inquiries regarding this treatment of syphilis. It has available for physicians, on request, a brief pamphlet on the present status of the intravenous drip method of treatment of syphilis. The address of the American Social Hygiene Association is 50 West Fiftieth Street, New York.

Bibliography of Pharmacology.—A new monthly bibliography is now being issued by the Hooker Scientific Library to record current literature in pharmacology. Entries are in title form but since the actual titles are often not informative a descriptive title is given to each item. Trade or common names of remedies are identified by addition of the chemical name when possible. Items in a foreign language are given descriptive titles in English. Each entry is spaced apart from other entries so that it can be clipped for mounting on an index card. Photoprint or microfilm copies of original articles can be obtained at small expense from the Hooker Scientific Library, or an abstract of any item will be supplied for a nominal fee. Every foreign language entry carries a statement showing the cost of a complete translation. A specimen copy of the "Bibliography of Pharmacology" and detailed information concerning the library and its work can be had by writing to Hooker Scientific Library, Central College, Fayette, Mo.

The Ashford Award in Tropical Medicine.—At the annual meeting of the American Society of Tropical Medicine in Memphis, Tenn., the Bailey K. Ashford Award in Tropical Medicine was established by Eli Lilly & Co. to be awarded on alternate years for a total of three times. The award will be $1,000 and a bronze medal suitably engraved. An additional amount of $150 or as much thereof as may be necessary is available toward traveling expenses for the recipient of the award. It will be given biennially in recognition of demonstrated research in the field of tropical medicine, taking into consideration independence of thought and originality. The investigator must be a citizen of the United States and less than 35 years of age on January 1 of the year in which the award is made. The recipient must not be associated with a commercial laboratory and need not be a member of the American Society of Tropical Medicine. Members of the American Society of Tropical Medicine are to submit to the secretary of the society in triplicate the name of a proposed recipient with information concerning his personality and training and a statement of the research work for which the award is to be made. All nominations must be in the hands of the secretary at least sixty days before the dates of the annual meeting at which time the award is to be made. The recipient will be given opportunity to present a short review of his work at the meeting. The committee of award shall consist of the president of the society ex officio and three members of the society, each to serve for a period of six years, one to be elected every other year at the annual meeting by the council, except that the original committee be elected at once by the council on nomination of the president, one member to be elected for six years, one for four years and one for two.

Results of the Golf Tournament at New York.—At the twenty-sixth annual tournament of the American Medical Golfing Association, at Winged Foot Golf Club, Mamaroneck, N. Y., Monday, June 10, in a field of 145 golfers, Dr. John Murphy, Detroit, won the championship with a gross of 160 for thirty-six holes and at the banquet was presented with the Will Walter Trophy. The runner-up was Dr. G. R. Love, Oconomowoc, Wis., with a score of 162. Dr. Love was awarded the St. Louis Trophy. Other winners in the thirty-six hole event were Drs. C. E. Moore, Harrisburg, Pa.; F. O. Henrickson, Springfield, Pa.; J. C. Cox, Maplewood, N. J.; E. B. Sullivan, New York City; E. S. Edgerton, Wichita, Kan., and J. J. Marek, Cleveland.

Dr. D. H. Houston, Seattle, and Dr. R. J. Vreeland, Paterson, N. J., were tied for the thirty-six hole Handicap Championship. On the toss, Houston won the Detroit Trophy and Vreeland won the president's cup. Other winners in the handicap championship flight were Drs. A. M. Paulson, Plainfield, N. J.; R. M. Wolff, Lebanon, Pa.; W. C. Spiedel, Seattle; P. H. Watson, Newburgh, N. Y.; C. G. Prather, Westwood, N. J., and W. D. Shelden, Rochester, Minn.

Dr. J. J. Hennessy, Hartford, Conn., won the eighteen hole championship, gaining the Golden State Trophy.

The eighteen hole handicap championship went to Dr. R. L. Cox, Starr Junction, Pa., who won the Ben Thomas Trophy. Second place went to Dr. J. M. Robb, Detroit, who took home the Atlantic City Trophy.

In the Maturity Event the Minneapolis Trophy went to Dr. Frank A. Kelly, Detroit.

Dr. Charles Lukens, Toledo, Ohio, won the Wendell Phillips Trophy, emblematic of championship among the past presidents of the American Medical Golfing Association.

Dr. D. H. Houston was elected president, Dr. Harry E. Mock of Chicago, first vice president, and Dr. James Craig Joyner, New York City, second vice president of the A. M. G. A. Bill Burns, Lansing, Mich., was reappointed executive secretary. Dr. Hall, the retiring president, was made a member of the board of directors. The next tournament will be held in Cleveland in June 1941.

Foreign Letters

PARIS

(From Our Regular Correspondent)

May 25, 1940.

Traumatic Shock

Until recently, surgeons and physiologists were in accord regarding shock, considering it a condition accompanying traumatic toxemia. This agreement has not withstood the impact of recent investigations on histamine or on the vasomotor tonus and the biochemical humoral changes. The recent work of Frank C. Mann and his collaborators has led to some conclusions. A large number of men are found at the front with a treacherous syndrome characterized by vasomotor, circulatory and psychic insufficiency, the result of a series of diverse syndromes due to hemorrhage, emotion, pain and fatigue and to toxic and infectious absorption. Shock so defined is a complication involving depression and toxemia. It is frequently fatal. Aid must quickly be given to the wounded before complications and the critical moment occur which set the vicious circle of shock in motion. We now have a series of new therapies. Prophylaxis consists in providing proper food and care and in administration of respiratory and cardiovascular analeptics, to which might be added atropine, strychnine and picrotoxin, not to mention oxygen. Preventive therapy may be adapted to certain conditions such as hemorrhage, nervous exhaustion and gas poisoning. Curative therapy consists in restoring body temperature, maintaining the activity of the cardiovascular system by physiologic serum employed in moderation and a constant check of the venous pressure. Acidosis must be combated by sodium bicarbonate and anoxemia by oxygen. Besides, certain manifestations will control therapy and make mandatory transfusions in cases of hemorrhage, of blood stagnation and of complete paralytic vasodilatation. These are the views recently presented by G. Janneney and L. Justin-Besançon before the Academy of Surgery. Two significant facts appeared: The garrot retards the appearance of shock; amputation cures it, even if performed during complete and grave shock. The role of absorption of proteins devitalized by the trauma is thus brought out. Léon Binet and M. V. Strumza obtained good results in grave experimentally induced hemorrhage by means of a mixture of three parts of serum saturated with oxygen and one part of citrated blood. However, a hemorrhage is not a traumatic shock. Lambret, who was to make a report on shock before the Congress of Surgeons which was to take place in Stockholm in 1941 but has been canceled, stressed two principal factors in the origin of shock: one an immediate neurovegetative factor whose point of departure was the wound, with multiple small filaments of the sympathetic nerve; the other a delayed toxic factor caused by the pressure of liberated proteins in the blood. Lambret concluded that the essential remedies against shock consisted in transfusions in large quantities and large doses of insulin. However, he realized that further investigations were needed.

Typhus Fever

Danielopolu and his collaborators during and after the war of 1914-1918 observed widespread typhus epidemics in the Orient. Recently they pointed out before the Academy of Medicine that war epidemics furnished the gravest cases. Typhus seems to become intensified by passing successively through the bodies of individuals and disease vectors. Russia constituted the great virus reservoir. The principal characteristic of the infection was its localization in the vascular system, where lesions manifested themselves in conjunctival injections and vasodilatation of the face followed by lesions of the walls of the vessels. These were succeeded by "syndromes of the extremities" and myocardiac, renal and nervous disorders. Danielopolu said that in hypertrophic cases one could find as many as 100,000 leukocytes and in fatal cases as many as 126,000. Two abnormal factors were present: plasmocytes with basophilic protoplasm and monocytoids of endothelial or reticulo-endothelial origin that sprang from vascular desquamation and possessed great diagnostic value. Rapid increase of leukocytes carried with it a fatal prognosis. Simultaneously there appeared changes in the cerebrospinal fluid, such as leukocytic reactions, red blood corpuscles and xanthochromia.

Typhus fever as well as relapsing fever was transmitted, he said, by the body louse. Infections could be caused by the crushing of lice in contact with the skin or by touching the conjunctiva with contaminated fingers. Lice feces also played a certain part, but the bite of the insect introduced the virus into the blood. In this way the occasional occurrence of typhus among physicians and nurses was to be explained. The presence of many lice was needed to spread relapsing fever, but a few sufficed to cause typhus, if they carried the infection. This explained certain epidemiologic phenomena, for example the clear distinction between the evolution of the two kinds of epidemics. In case of a combined epidemic a widely practiced delousing caused relapsing fever almost to disappear entirely, while typhus persisted because it required fewer disease carriers.

The viability of typhus virus was considerable and often bridged the intervals between epidemics. M. Balthazard and G. Blanc reported to the Société de pathologie exotique experiments with lice excrements, the infectivity of which was retained for more than 300 days. Dried virus could thus be transported in the baggage and the clothes of refugees. These authors pointed out that the infection of rat fleas by the virus of epidemic typhus coincided with that of the body louse by the same virus and that of fleas by the virus of rat typhus. Paul Durand and Paul Giraud discussed before the Academy of Science their methods of antityphus vaccination by means of a fine emulsion of mouse lungs infected by way of the respiratory organs; that is, an emulsion of rickettsiae killed by a solution of formaldehyde. They demonstrated the harmlessness of the injections in all cases and the total absence of virulence in the vaccine.

BUDAPEST

(From Our Regular Correspondent)

May 15, 1940.

Scientific Cooperation with Germany

Scientific cooperation between Germany and Hungary, Yugoslavia, Bulgaria and Greece is shown by the exchange of students carried out last summer. The summer courses held in Germany under the direction of Prof. Walter Lörch were a great success. From Hungary twenty-seven students, from Yugoslavia thirty-six, from Bulgaria nineteen and from Greece twenty-two took the exchange courses. The majority were medical and veterinary students, but there were many agricultural students. During their stay in Germany they performed, besides theoretical studies, practical work in clinics, hospitals and model farms and in the summer camps of the youth labor service.

Similarly German students visit the Southeastern European countries every summer. They are provisionally trained for this excursion at the academy in Leipzig. This scientific exchange of students between Germany and the Near East has been going on for five years. After the completion of these courses every student is obliged to write a treatise on what he learned. This academic exchange is directed by the Mittel-Europa Institute in Dresden, Germany, which has branches in the capitals of all countries concerned.

The Law on Artificial Abortion

Up to the present every physician had a right to induce abortion in case of danger to the life of the mother. Without any formality, he was obliged only to bring the act to the notice

of the public prosecutor in a confidential way. In all cases in which there was no immediate danger to life, preliminary authorization by the prosecutor was necessary and was issued on the basis of the opinion of another physician. On the ground of the registration books of the prosecutor's office the ministry of justice established the fact that in certain parts of the country the number of such operations was very great. The suspicion arose that it is very easy to procure medical certificates recommending the performance of abortion. On this ground the minister of justice modified the law. The prosecutors have been instructed to give permission only (1) if there is danger to the mother's life which cannot be averted in any other way; (2) if pregnancy aggravates the disease of the woman and there is no other way to avert the danger; (3) if one of the parents is suffering from insanity. The prosecutor issues the permission by observing the following rules: After filing the doctor's application for permission, the prosecutor on duty and the forensic doctor appear in the home of the pregnant woman and the latter examines her. The imminent danger having been established, the permission is issued. In instances described in paragraphs 2 and 3 the application to the prosecutor has to be supplemented by the certificate of a hospital doctor or a certificate must be issued by two physicians who have held a consultation. The consultant must be a specialist in female diseases. On receipt of the application the prosecutor appoints a medical committee consisting of the forensic doctor, a specialist of the disease from which the woman suffers and the district medical officer of health. The committee submits to the prosecutor a written report. The prosecutor handles all matters with professional secrecy as long as there is no evidence that a criminal act has been committed in connection with the operation.

BUENOS AIRES

(From Our Regular Correspondent)

May 10, 1940.

New Regulations Regarding Medicines

The National Department of Hygiene in Buenos Aires has issued new regulations regarding the trade in medicaments. One is that directly underneath the name of the medicine it must be indicated whether it is obtainable without or only with prescription. Advertising has been restricted in certain respects; on the labels, in the prospectuses and in other types of printed matter that are enclosed with the medicine as well as in the advertisements, only the pharmacologic action may be mentioned, whereas it is absolutely forbidden to list diseases or clinical symptoms. This regulation applies not only to new preparations but also to those already accepted. In the case of the latter, the regulations must be complied with within one year, otherwise the permit for the marketing of the preparations in question is withdrawn. An official list contains the details regarding the pharmaceutic classification and the sale. These measures were approved by large medical and pharmaceutic groups. A large number of letters of appreciation have been published in the *Boletin Sanitario del Departmento Nacional de Higiene.*

The president of the Argentine Republic, Dr. Ortiz, has issued a regulation according to which the accumulation of medicines for speculation is prohibited.

Health Conditions in Argentina

The report of the National Health Department for 1938, issued recently, contains interesting information. Progress has been made in combating malaria; the number of patients treated was in round numbers 160,000. More than 1,800 Kg. of quinine was distributed and in addition almost 140,000 tablets of atabrine and 72,000 of plasmochin, which quantities were larger than in the preceding year. There is a special Dirección General del Paludismo, which has authority over the six northern provinces and which used for purposes of sanitation large quantities of petroleum and paris green; moreover, drainage of swamps and other well known sanitation methods were employed. In rural regions, the campaign is difficult. It is limited mainly to the distribution of medicines free of charge. To protect nurslings, 300 cradles were acquired which are impenetrable to mosquitoes.

Of the scientific advances, there is the detection of Anopheles annulipalpis in Mendoza, the existence of which was formerly regarded as doubtful; its larva was hitherto unknown. Studies revealed that this is chiefly a zoophilic mosquito with only a slight tendency to attack human subjects. The endemic zone extends over 120,000 square kilometers having 850,000 inhabitants of whom 550,000 live in rural regions and 300,000 in already sanitized regions. To effect further improvements, an extensive program has been outlined.

Fifteen cases of plague with a mortality of 80 per cent were observed during 1938. In the North it is again the Dirección General del Paludismo which conducts the campaign against plague. The infection there seems to be traceable to the prevalence of the disease among the rodents of the forests, and it is probable that it entered Argentina by way of the northern boundary with Bolivia.

Fifty-three cases of smallpox were introduced from neighboring countries.

The number of new cases of leprosy was 327. The total number of leprous patients under control at the end of 1938 was about 3,500.

Ancylostomiasis is the most important sanitary problem in a certain zone in the northern part of Argentina, especially in Corrientes. The greatest obstacle in the eradication of this endemic is that 63 per cent of the houses have no latrine.

Goiter is prevalent in some of the eastern districts; thus 27 per cent of 13,000 school children were found to have it. With the aid of school teachers, iodine therapy was extended also in the northern parts of the country, where goiter seems to be decreasing.

The protection of mother and child was extended by the establishment of additional centers in the interior of the country. The number of centers already functioning increased from seventeen to twenty-six. Consultations were given to more than 5,000 pregnant women and to 19,000 children; moreover, more than 10,000 home visits were made and 1,200,000 meals were served.

The activities of the section for the control of narcotics was continued by its director, Dr. R. A. Pita. The quantity of narcotic alkaloids imported during 1938 was considerably below the average for the preceding years. In the estimate of the requirements for 1939, the quantity for cocaine decreased by 50 per cent and that of heroin by 33 per cent, whereas that for morphine remained unchanged.

Marriages

JEFFERSON GIDEON WALDROP to Miss Lytle Rowland, both of Lewisburg, Tenn., in Louisville, Ky., recently.

THOMAS ANTHONY GARRETT, Philadelphia, to Miss Velma V. Moersdorf of Jersey City, N. J., March 25.

JOHN A. GLORIOSO, Lima, Ohio, to Miss Elsie Cahill of Halifax, Nova Scotia, Canada, February 5.

RALPH DANIEL BOLTON to DR. SARAH CURTISS, both of Canton, Ohio, in South Euclid, March 30.

JOHN TALLMAN JARRETT, Dunbar, W. Va., to Miss Anne Mildred Wood of Richmond, Va., May 1.

WILLIAM A. SCHROER, Fort Loramie, Ohio, to Miss Ellen Elizabeth Boyer of Miamisburg, May 4.

THOMAS FINDLEY JR., St. Louis, to Miss Jean Kyer of Ann Arbor, Mich., in St. Louis, April 11.

JAMES E. MURTAUGH, Charles City, Iowa, to Miss Margaret McGowan of Fort Dodge, May 25.

Deaths

Alfred James Scott Jr. ✠ Los Angeles; University of Southern California College of Medicine, Los Angeles, 1909; member of the House of Delegates of the American Medical Association in 1934 and 1936; clinical instructor in pediatrics at the University of California Medical Department from 1909 to 1912; clinical instructor in pediatrics at his alma mater, 1912-1913, assistant professor of pediatrics from 1914 to 1918, associate professor 1918-1919 and professor 1919-1920; professor of clinical pediatrics from 1920 to 1934, professor of pediatrics and later professor of pediatrics emeritus at the College of Medical Evangelists; fellow of the American College of Physicians; past president of the Southwestern Pediatric Society and the Los Angeles Obstetrical Society; member of the California State Department of Public Health from 1922 to 1932; member of the attending staff, Los Angeles County Hospital, from 1910 to 1924 and the consulting staff from 1924 to 1936; on the staff and member of the medical advisory board from 1922 to 1937; president of the California Babies Hospital from 1920 to 1931; aged 58; died, April 17.

Charles Richard ✠ Brigadier General, U. S. Army, retired, Washington, D. C.; University of the City of New York Medical Department, 1876; member of the House of Delegates of the American Medical Association in 1907 and 1914; entered the regular army as an assistant surgeon in 1879; served during the Spanish-American War; at various times was in command of the Army Medical School, Walter Reed Hospital, the Sternberg Hospital in Manila and the Medical Supply Depot in New York; during the World War he was one of the principal assistants in the office of the Surgeon General; from 1888 to 1889 was lecturer of military medicine and professor of surgery from 1889 to 1891 at the University of Colorado; was commissioned a colonel in 1910 and was retired in 1918 by operation of law; under the Act of June 21, 1930, was commissioned a brigadier general; aged 85; died, April 19, of coronary thrombosis, arteriosclerosis and hypertension.

Alfred Hans Waring Caulfeild, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1904; past president of the Association for the Study of Allergy and the American Association for the Study of Asthma; member of the American Clinical and Climatological Association; served during the World War; associated with the department of pensions and national health; research member of the Connaught Laboratories, University of Toronto; on the staffs of the Christie Street Hospital, Toronto General Hospital and the Toronto Western Hospital; director of the pathology department, Muskoka Cottage Hospital and the Muskoka Free Hospital for Consumptives, Sanitarium; aged 60; died, May 2.

Walter Leslie Huggins ✠ Los Angeles; Albany (N. Y.) Medical College, 1899; University of Southern California College of Medicine, Los Angeles, 1908; fellow of the American College of Surgeons; formerly associate professor of surgery at the College of Medical Evangelists; aged 68; consulting surgeon to the Los Angeles County Hospital and Orthopedic Hospital; attending surgeon to the Methodist Hospital and the Hollywood Hospital, where he died, April 18.

Clifford Weld Skinner ✠ Meadville, Pa.; Rush Medical College, Chicago, 1930; formerly assistant dean and associate professor of anatomy at the Medical College of Virginia, Richmond; director of health, Allegheny College; member of the American Society of Anesthetists, Inc.; on the staff of the Meadville City Hospital; aged 47; died, April 22, of cerebral hemorrhage.

Clarence Worrel Prevost ✠ Pittston, Pa.; Jefferson Medical College of Philadelphia, 1894; fellow of the American College of Surgeons; past president of the Luzerne County Medical Society; surgeon to the Lehigh Valley Railroad and the Lackawanna and Wyoming Valley Railroad; on the staff of the Pittston Hospital; aged 74; died, April 30, of heart block.

Henry Wireman Cook ✠ Minneapolis; Johns Hopkins University School of Medicine, Baltimore, 1902; vice president and medical director of the Northwestern National Life Insurance Company; past president of the Association of Life Insurance Medical Directors; aged 62; died, April 25, of coronary thrombosis.

Edward William Hall, San Diego, Calif.; Long Island College Hospital, Brooklyn, 1897; veteran of the Spanish-American and World wars; formerly member of the board of health of New York City; for many years on the staff of the Harlem Hospital, New York; aged 79; was drowned, April 7.

Theodore James Peake, Clinton, S. C.; University of Nashville (Tenn.) Medical Department, 1906; member of the South Carolina Medical Association; served during the World War; aged 59; died, April 14, in the Veterans Administration Facility, Columbia, of peptic ulcer with massive hemorrhage.

Caleb Edwin Witt, Little Rock, Ark.; Missouri Medical College, St. Louis, 1889; Hospital College of Medicine, Louisville, Ky., 1896; emeritus professor of medicine at the University of Arkansas School of Medicine; for many years on the staff of the Baptist Hospital; aged 77; died April 23.

Reba Lloyd ✠ Bridgeton, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1898; past president of the Cumberland County Medical Society; past president of the board of health; aged 72; owner of the Ivy Hall Sanitarium, where she died, April 14, of chronic myocarditis and arthritis.

Lewis Perley Felch ✠ Boston; Tufts College Medical School, Boston, 1906; for many years on the staff of the Massachusetts General Hospital and the Carney Hospital; was medical examiner for the industrial accident board; aged 68; died, April 2, of arteriosclerosis and uremia.

Henry Joel Walcott ✠ Concord, Mass.; Jefferson Medical College of Philadelphia, 1896; on the staff of the Emerson Hospital; for many years on the staff of the Massachusetts Reformatory, West Concord; aged 68; died, April 17, in the Massachusetts General Hospital, Boston.

Francis Jervois Callanan, Boston; Harvard Medical School, Boston, 1918; member of the Massachusetts Medical Society; fellow of the American College of Surgeons; aged 45; surgeon to the Massachusetts Women's Hospital, where he died, April 21, of carcinoma of the right lung.

Samuel Frank, Brooklyn; Long Island College Hospital, Brooklyn, 1904; member of the Medical Society of the State of New York; served during the World War; on the staffs of the Coney Island Hospital and the Brooklyn Eye and Ear Hospital; aged 62; died, April 5, of uremia.

Jacob J. Schloss, Boston; Julius-Maximilians-Universität Medizinische Fakultät, Wurzburg, Bavaria, Germany, 1925; instructor of Medicine at Tufts College Medical School; on the staff of the Joseph H. Pratt Diagnostic Hospital; aged 41; died, April 23, of coronary thrombosis.

William Martin Millar, Westport, Conn.; Johns Hopkins University School of Medicine, Baltimore, 1927; formerly assistant professor of surgery, University of Cincinnati College of Medicine; aged 38; died, April 12, in the Duke Hospital, Durham, N. C., of Hodgkin's disease.

Alden Robbins Hoover ✠ Elizabeth, N. J.; State University of Iowa College of Medicine, Iowa City, 1905; fellow of the American College of Surgeons; formerly a medical missionary; served during the World War; aged 63; died, April 29, of coronary thrombosis.

Clarence Prentice Rice, Breckenridge, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1906; member of the American Academy of Ophthalmology and Otolaryngology; aged 64; died, April 12, of cerebral hemorrhage and arteriosclerosis.

Martha Eleanor Lovell, Winthrop, Mass.; Woman's Medical College of Pennsylvania, Philadelphia, 1899; member of the Massachusetts Medical Society; aged 73; died, April 22, in the Peter Bent Brigham Hospital, Boston, of coronary thrombosis and arteriosclerosis.

Abraham L. Farnsworth ✠ Baraboo, Wis.; Milwaukee Medical College, 1900; past president of the Sauk County Medical Society; on the staff of St. Mary's Ringling Hospital; aged 73; died, April 20, of chronic nephritis and chronic myocarditis.

Gilbert Alonzo Ashmun, Brooklyn; Long Island College Hospital, Brooklyn, 1895; member of the Medical Society of the State of New York; served during the World War; aged 66; died, May 2, in the Brooklyn Hospital of brain tumor.

Charles Glover Shannon, Chicago; Reliance Medical College, Chicago, 1910; served during the World War; aged 55; died, April 25, in the Veterans Administration Facility, Bay Pines, Fla., of arteriosclerotic hypertensive heart disease.

Henry Erwin Shaw, Ashland City, Tenn.; Vanderbilt University School of Medicine, Nashville, 1882; University of Nashville (Tenn.) Medical Department, 1883; aged 82; died; April 21, of lobar pneumonia and arteriosclerosis.

Gertrude Jones Cuscaden, Chillicothe, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1874; member of the Nebraska State Medical Association; aged 90; died, May 16, of myocarditis and pneumonia.

Herbert Llewellyn Mains, Danvers, Mass.; University of Vermont College of Medicine, Burlington, 1912; member of the Massachusetts Medical Society; served during the World War; aged 62; died, April 6, of coronary thrombosis.

Henry C. Bowman, Schuylkill Haven, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1890; member of the Medical Society of the State of Pennsylvania; aged 85; died, April 19, of acute coronary occlusion.

John Moody Yeager, Marlinton, W. Va.; University of Louisville (Ky.) Medical Department, 1901; aged 63; died, April 14, in the Chesapeake and Ohio Railroad Hospital, Clifton Forge, Va., of cerebral hemorrhage.

Edward Wallace Young, New Bedford, Mass.; Tufts College Medical School, Boston, 1913; member of the Massachusetts Medical Society; served during the World War; aged 53; died, April 16, of cirrhosis of the liver.

Oscar Herman Riemenschneider, Cleveland; Cleveland Homeopathic Medical College, 1903; served during the World War; aged 59; died, April 7, in the City Hospital of bronchopneumonia and acute hemorrhagic cystitis.

Fernando A. B. Roys, Syracuse, N. Y.; College of Physicians and Surgeons, Keokuk, Iowa, 1873; Chicago Medical College, 1881; aged 95; died, April 26, in the Syracuse Memorial Hospital of coronary thrombosis.

Felix M. Williams, Hot Springs National Park, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; aged 78; died, April 11, in St. Joseph's Hospital of a streptococcic infection of the throat.

Wilfred Henry Gardner, Los Angeles; Chicago Homeopathic Medical College, 1902; University of Illinois College of Medicine, Chicago, 1904; served during the World War; aged 62; died, April 24, of heart disease.

Elmer Kenneth Umberger, Flatonia, Texas; University of Tennessee College of Medicine, Memphis, 1931; at one time health officer of McCreary County, Ky.; aged 35; died, April 23, of an overdose of a hypnotic.

Walter Henry Rice ✠ Boston; Tufts College Medical School, Boston, 1896; Harvard Medical School, Boston, 1899; aged 67; died, April 19, in the Cambridge (Mass.) Hospital of carcinoma of the stomach.

Frederick Terrell, San Antonio, Texas; Harvard Medical School, Boston, 1881; formerly mayor, president of the school board and bank president; aged 84; died, March 11, of arteriosclerotic heart disease.

William Francis Wright ✠ Portsmouth, R. I.; Baltimore Medical College, 1908; member of the Massachusetts Medical Society; aged 59; died, April 11, in Miami, Fla., of gastrointestinal hemorrhage.

John Darrow Tupper, North Dartmouth, Mass.; Boston University School of Medicine, 1895; for many years school physician; aged 81; died, March 4, in the Fall River (Mass.) General Hospital.

Alexius Henri Archambault, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1909; aged 53; died, March 24.

Paul Wayne Butz, Plymouth, Mich.; Northwestern University Medical School, Chicago, 1929; member of the Michigan State Medical Society; aged 39; was killed, May 1, in an automobile accident.

William A. Chapman, Miami, Fla.; Meharry Medical College, Nashville, Tenn., 1913; aged 53; died, April 30, of septicemia following abscess of the right hip joint due to an automobile accident.

Frank Sherman Kitson ✠ North Manchester, Ind.; Rush Medical College, Chicago, 1895; aged 69; died, April 25, in the Wabash (Ind.) County Hospital of cardiovascular renal disease.

Herbert Cooper, Drexel Hill, Pa.; Jefferson Medical College of Philadelphia, 1903; served during the World War; aged 66; died, April 10, of cardiac embolism and diabetes mellitus.

James Wesley Pollard, Homelake, Colo.; Memphis (Tenn.) Hospital Medical College, 1904; member of the Colorado State Medical Society; aged 65; died, April 8, of pulmonary abscess.

George Sinclair Gordon, Vancouver, B. C.; McGill University Faculty of Medicine, Montreal, Que., 1897; member of the North Pacific Surgical Association; aged 71; died, April 16.

John Cotton, Burnt Hills, N. Y.; Harvard Medical School, Boston, 1871; member of the Medical Society of the State of New York; aged 90; died, April 27, of chronic myocarditis.

Milton Ross Keeley, Los Angeles; Rush Medical College, Chicago, 1886; veteran of the Spanish-American War; aged 76; died, April 2, of chronic myocarditis and nephritis.

Edmond William Parsons, San Francisco; Cooper Medical College, San Francisco, 1905; aged 58; died, April 30, in St. Mary's Hospital of hypertension and arteriosclerosis.

Martin William Curran, Chatsworth, N. J.; Long Island College Hospital, Brooklyn, 1896; served during the World War; aged 73; died, April 17, of angina pectoris.

Daniel Livingston Morrison, New Brunswick, N. J.; New York University Medical College, 1897; aged 64; died, April 1, of arterial hypertension and myocarditis.

Reuben Baston Dearborn, Miami Beach, Fla.; Medico-Chirurgical College of Philadelphia, 1902; aged 59; died, April 17, in the Mound Park Hospital, St. Petersburg.

Nathan Cohen ✠ Brooklyn; Long Island College Hospital, Brooklyn, 1909; on the staffs of the Greenpoint and Beth Moses hospitals; aged 57; died, May 5, of carcinoma.

Daniel William Boden, Pasadena, Calif.; Eclectic Medical College of the City of New York, 1884; aged 82; died, April 1, of cerebral hemorrhage and diabetes mellitus.

Alexander S. Barger, Washington, D. C.; Howard University College of Medicine, Washington, 1894; aged 74; died, May 1, of arteriosclerosis and hypertension.

Karl Steinbeck, Parkersburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1905; aged 58; died, April 20, in the Camden-Clark Memorial Hospital.

Llewellyn J. Sanders, Rochester, N. Y.; New York Homeopathic Medical College and Hospital, 1895; aged 67; died, April 6, of chronic bronchiectasis.

Alphonse Ames Kergosien, Bay St. Louis, Miss.; University of Louisville (Ky.) Medical Department, 1909; aged 59; died, April 23, of chronic encephalitis.

Clark Everett Baker ✠ Marion, Ill.; Vanderbilt University School of Medicine, Nashville, Tenn., 1917; aged 47; died, May 14, of pneumonia and heart disease.

Henry B. Curtis, Denver; Gross Medical College, Denver, 1893; member of the Colorado State Medical Society; aged 74; died, May 4, of bronchopneumonia.

Roscoe Campbell, Toronto, Canada; University of Toronto Faculty of Medicine, 1910; aged 53; died, April 8, in the Toronto Western Hospital.

C. H. McCaslin, Kansas City, Mo.; Kentucky School of Medicine, Louisville, 1881; aged 87; died, April 29, of arteriosclerosis and hypertension.

Hugh Henry Graham, Fenelon Falls, Ont., Canada; Trinity Medical College, Toronto, 1882; M.R.C.S., England, 1884; aged 85; died, March 25.

Anngenette Fowler Noble ✠ Westfield, Mass.; Woman's Medical College of Baltimore, 1893; aged 79; died, April 30, of coronary thrombosis.

Fred B. Albaugh, Tyler, Texas; Chattanooga (Tenn.) Medical College, 1903; aged 62; died, April 22, in Rusk, Texas, of coronary occlusion.

John William Thorn ✠ Houston, Texas; Beaumont Hospital Medical College, St. Louis, 1898; aged 74; died, April 24, of diabetes mellitus.

Francis Hope Thibodo, Ventura, Calif.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1895; aged 69; died, March 25.

Charles Abner Johnston, Harford, Pa.; Bellevue Hospital Medical College, New York, 1880; aged 86; died, April 24, of arteriosclerosis.

Thomas Zeien, North Branch, Minn.; Rush Medical College, Chicago, 1884; aged 77; died, April 8, of uremia and arteriosclerosis.

Jacob L. Manasses, Philadelphia; Medico-Chirurgical College of Philadelphia, 1897; aged 65; died, April 6, of cerebral hemorrhage.

George F. Gardner, Ellisburg, N. Y.; Albany Medical College, 1878; formerly health officer; aged 82; died, April 13, of carcinoma.

Elmer E. Eddy ✠ Redwood, N. Y.; University of Buffalo School of Medicine, 1890; aged 78; died, April 30, of diabetes mellitus.

Julius W. Boiarsky, Cincinnati; Medical College of Ohio, Cincinnati, 1905; aged 58; died, May 3, of coronary occlusion.

A. Rudolph Walker, Cincinnati; Medical College of Ohio, Cincinnati, 1884; aged 78; died, April 23, of myocarditis.

Bureau of Investigation

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE.—The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding, and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

Benaris.—Benaris, Cleveland. Composition: Essentially liquid petrolatum, camphor and ephedrine. Fraudulently represented as an effective treatment for coughs, nasal catarrh, sinusitis, hay fever, sleeplessness, blurred vision, pains in the sides and heart, headaches from alcoholic indulgence, and many other disorders.—[*N. J. 30644; November 1939.*]

Gordon Red Liniment.—McConnon & Co., Winona, Minn. Composition: Essentially a small amount of camphoraceous material and red pepper in a solution of carbitol (ethyl ether of diethylene glycol) and water, colored with a red dye. For earache, simple throat irritations, toothache, colic and casual swellings from congestion. Fraudulent therapeutic claims.—[*N. J. 30648; November 1939.*]

Neu-Life.—Health Laboratories, Sacramento, Calif. Composition: Essentially plant material including small percentages of calcium, magnesium, iron, iodine, sulfur, phosphorus, potassium and sodium. Adulterated because falsely declared to contain vitamin D; misbranded because label claimed "Contains No Drugs" and because product fraudulently represented "to imbue the user with new life, to build up a new health and happiness, and to overcome glandular weakness and nerve prostration."—[*N. J. 30622; November 1939.*]

Normal Nux.—Norden Laboratories, Lincoln, Neb. Composition: Not more than 11 grains of strychnine and brucine sulfates per fluid ounce. Adulterated and misbranded because represented on the label to contain 14.6 grains of these substances.—[*N. J. 30620; November 1939.*]

San-O-Sen Antiseptic Spray.—San-O-Sen Laboratories, Chicago. Composition: Essentially water, pine oil, soap and a small amount of glycerin. For skin irritations. Fraudulent therapeutic claims.—[*N. J. 30640; November 1939.*]

Zilatone.—Drew Pharmacal Co., Buffalo. Composition: Tablets containing phenolphthalein, bile salts, pepsin, pancreatin and extracts of plant drugs, including red pepper, nux vomica and a laxative. Fraudulently represented to increase the digestion, stimulate the liver and bile, remedy chronic constipation, certain forms of gallbladder disorders, including gallstones; to relieve intestinal putrefaction and other bowel disorders.—[*N. J. 30625; November 1939.*]

JAMAICA "SPECIALIST" OFFERS A "RUPTURE CURE"

But U. S. Post Office Turns Thumbs Down

The mail-order quacks have promoted "cures" for cancer, tuberculosis, anemia, psoriasis, diabetes, Bright's disease, arteriosclerosis, high blood pressure, baldness, crooked noses and complexion ills. The entire catalogue is too long to list here! Among the treatments that obviously must be administered to the patient in person is one for hernia; yet some exploiters brazenly claim that rupture is something that can be cured by mail!

One of these gentry, an H. F. Pettitt of Kingston, Jamaica, British West Indies, advertised:

"RUPTURE CURED PERMANENTLY.
SENSATIONAL! H. Pettitt (Specialist)"

When the United States Post Office investigated this enterprise, it learned that persons who answered the advertisement received printed form-letters reading in part as follows:

A NEW ERA HAS DAWNED FOR THE RUPTURED PERSON

H. F. PETTITT (SPECIALIST) INVENTOR OF THE JIFFY STOPPER—FOR THE RELIEF AND CURE OF RUPTURE

The new cure for hernia (rupture) is to close the opening where the bowels get through which cause the swelling, by a scientifically constructed device which is entirely different from anything else known for the treatment of rupture. This wonderful device, the "Jiffy Stopper," contracts the opening by thickening the tissues, strengthening the walls and muscles, eventually closing the opening entirely—thus making a CURE . . . The Jiffy Stopper has the indorsement of physicians, the Chamber of Commerce of Jamaica, the Jamaica Imperial Association, and ruptured persons everywhere as the only reliable gadget for hernia.

According to the Post Office memorandum on this case "The device sold in the scheme is a simple truss which is made of a wire spring, a leather strap, and two covered composition pads, one on each end of the wire spring so that one will cover the hernia and the other will provide counter pressure on the buttocks."

Expert medical evidence was introduced at the hearing of this case to show that the proper treatment of a common inguinal hernia is the tightening of the stretched or strained lining of the abdomen and also a tightening of the ligamentous structures of the abdominal muscles and the covering of the defect in the abdominal wall. The medical evidence further showed that the "Jiffy Stopper" would not thicken the tissues of the hernial opening or strengthen the walls and muscles "eventually closing the opening entirely," as represented by the promoters of this scheme. This representation, therefore, was declared to be false and fraudulent. Hence to set forth the device as a cure for all ruptures "in a short time" or in any length of time was shown to be a dishonest practice, as was the claim that by the wearing of the Jiffy Stopper "it is impossible" for the hernia to slip out of place. Accordingly a fraud order was issued on Aug. 14, 1939, against the names H. F. Pettitt, H. Pettitt, Specialist, and H. F. Pettitt, Specialist, debarring this individual and his scheme from the United States mails.

Correspondence

GALLSTONES IN CHILDREN

To the Editor:—In the article entitled "Gallstones in Children" by Seidler and Brakeley (THE JOURNAL, May 25, p. 2082) no mention is made among the etiologic factors of the hemolytic anemias—spherocytic ictero-anemia in whites and sickle cell anemia in Negroes. While by no means common, neither are these conditions extremely rare, and they should be borne in mind whenever gallstones are encountered in children. In fact, the case reported by the authors has many features which strongly suggest the presence of sickle cell anemia. A 10 year old Negro girl with a six year history of recurrent bouts of jaundice and abdominal pain who is said to have had rheumatic fever at the age of 4 years and has experienced intervals of fever and arthralgias since and who complains now of anorexia and weakness presents the classic historical background of sickle cell anemia. The notations that she appeared to be chronically ill and that a systolic murmur was heard at the apex of the heart are features found in sickle cell anemia which, along with the history of recurrent fever and arthralgias in the past, frequently cause a faulty diagnosis of rheumatic fever to be made. The anemia and leukocytosis presented by the patient on admission are additional manifestations that characterize sickle cell anemia. Even the pericholedochal lymphadenopathy on which the authors lay stress might be adequately explained by sickle cell anemia.

It would be of great interest to learn whether or not examinations were made for the presence or absence of the sickling phenomenon in the red blood cells of the patient. It would likewise be of interest to learn something more of the character of the gallstones found. If these were of the pure pigment type, the possibility of an underlying hemolytic disturbance would, to some extent, receive additional support.

There is one other feature of the laboratory data presented which merits some remark. The Van den Bergh test "both direct and indirect" is reported as "negative." I would presume that by "negative" the authors mean to convey that the "indirect

Van den Bergh" test yielded a bilirubin level that was less than the maximum value, which they accept as within normal limits. The so-called indirect Van den Bergh test is in reality a quantitative estimation of the existent bilirubinemia, and as such it would make for more clarity to report it quantitatively in terms of milligrams per hundred cubic centimeters of serum rather than to employ such nondescript terms as "negative" or "positive." It is, moreover, a little difficult to understand why a patient who is clinically jaundiced and who has an icteric index of 25 should have a bilirubinemia within normal values.

J. EDWARD BERK, M.D., Philadelphia.

LABELING AND DEMOCRACY

To the Editor:—The April 27 issue, page 1671, comments on the labeling of vitamin-containing alcoholic beverages. It is undoubtedly a bad thing that the public should be misled with regard to vitamins in beverages or foods. On account of the publicity that vitamins have received, the public undoubtedly has a general idea that anything that contains vitamins must therefore be desirable.

I do not think, however, that one can defend a ruling which states that a label on a beverage or anything else should not contain truthful information concerning that material. It would certainly be proper to make a ruling forcing the manufacturer to put on the label the actual quantity of vitamins present, and it would be proper to prevent the appearance on the label of any misleading therapeutic claims.

It appears to me that this is an example of the paternalistic tendency of government bureaus. It is undoubtedly good for the health of the public that it should be protected, but whether it is good for our political future that government bureaus should interfere with the people's rights to a knowledge of the truth, and their freedom to act on that knowledge, even when one suspects that they may not act wisely, if carried to its logical conclusion leads to benevolent despotism. In these days when we are fighting so hard for the preservation of democracy, I much dislike to see such small nibblings at the margins of democracy.

R. R. NEWELL, M.D., San Francisco.

INJECTION OF VARICOSE VEINS

To the Editor:—Drs. Dean and Dulin have reported two fatal cases of pulmonary embolism following injection of varicose veins (THE JOURNAL, April 6, p. 1344). They do not state whether other nonfatal cases of embolism occurred in their total of 600 cases. The mortality of this accident is apparently high: Dean and Dulin quote Silverman's collection of twenty cases with fifteen deaths.

In one of the cases reported by these writers an interval of six days elapsed between the first and the second (fatal) embolism. During this interval the patient is described as having bronchopneumonia. Despite this consequence of embolism, might it not have been possible to ligate the external iliac vein and thus forestall the subsequent fatality? I reported such an operation, done after the second embolism (*Am. J. Surg.* **45**:145 [July] 1939). It was possible with spinal anesthesia to ligate the vein above its proximal thrombosed area; no further embolism occurred.

Drs. Dean and Dulin have rightly emphasized the importance of high ligation of the saphenous vein prior to injection of varicosities.

K. P. A. TAYLOR, M.D.,
Puerto Armuelles, Chiriqui,
Republic of Panama.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

INDUSTRIAL SAFETY GLASSES

***To the Editor:*—The question has arisen, regarding so-called safety spectacles used in industry, as to the relative quality of flat and 6.00 curve lenses. This is especially directed to the perfection to which these lenses are ground or polished for use by a workman who does not require a correction. I am particularly interested in the comparison of the merits of flat versus curved lenses. Many workmen complain that the curved lens causes headache. I would appreciate any information regarding this subject.**

R. M. Brown, M.D., Buffalo.

ANSWER.—The lenses in industrial safety glasses are most commonly of the tempered variety, and except for increased thickness and case hardening they are identical in quality and finish with standard, first quality ophthalmic lenses. Case hardening consists simply of heating the lens to a level just below its melting temperature and then cooling both surfaces simultaneously by compressed air. With a hypersensitive individual the spectacle places an annoying weight on the nose, and the reduced air circulation about the eye aggravates the discomfort of chronic conjunctivitis if present. In plano tempered lenses the deep meniscus form has effects not present in flat lenses: 1. Surface reflections are more noticeable. 2. A magnification results, though less than 1 per cent. 3. In convergence, a slight prismatic effect is produced, which may be as much as one-fourth prism diopter base out for each eye, which might be disturbing to one with more than the usual exophoria for near vision. All these effects are more likely to be ignored if a proper correcting lens is worn instead of a plano glass.

ACROPARESTHESIA

***To the Editor:*—A manual worker has pains in his fingers around the nails. He wears gloves at work and says that his fingers have been tender for years. There is no evidence of disease. What could cause this? What treatment should be given?**

M.D., Texas.

ANSWER.—This meager description indicates acroparesthesia. If it is a typical case the attacks of pain appear more often at night or the first thing in the morning and wear off as the patient works or they are relieved by soaking the hands in warm water. They are worse in winter or if the patient has to work with cold water or handle ice. The pain may be accompanied by sensations of numbness, tingling or formication. On examination most cases prove to be hyposensitive rather than hypersensitive and show hypalgesia rather than hyperalgesia. The abnormal sensations as well as the abnormal reactions to touch and pain are general in all the fingers and are not confined to any particular nerve distribution, and there is no tenderness of the nerve trunks. In spite of the sensation of stiffness left after the attack subsides, there is never any swelling. This represents the Schultze type of acroparesthesia. The Nothnagel type is differentiated by the fact that the skin becomes blanched and cold or even cyanotic during attacks. Cassirer, an authority on this group of nervous disorders, believes that the Nothnagel group, which is not so common as the other, is an intermediate form between acroparesthesia and Raynaud's disease (Cassirer, R.: Die vasomotorischen trophischen Neurosen, Berlin, S. Karger, 1901).

The prognosis is good as far as concerns serious development, but the disease often resists treatment. Many cases are so mild that treatment is never sought. Cassirer mentions one case that he watched for twenty-five years without being able to see any significant progress. Spontaneous remissions occur at times.

Women between 40 and 60 years of age are most often afflicted, but when the disease occurs in men it is said to be more severe. Fine hand work, cold, trauma, anemia, excessive use of alcohol or the presence of other toxins are held responsible in some cases. In women pregnancy, the puerperium or the menopause may precipitate the disease. Psychic disturbances may be the cause in some cases. Tuberculosis and syphilis are seldom to blame. Many cases occur, however, in which no etiologic factor can be discovered.

Raynaud's disease, hysteria, neuritis, abortive forms of tetany, oncoming acromegaly, syringomyelia and ergotism have to be

differentiated. Tabes dorsalis sometimes begins with paresthesia in the extremities, but a definite nerve distribution can usually be found.

The pathogenesis of this disease is not clear. An interesting discussion of it and a report of the author's own case, caused by quinidine, is found in Acroparesthesia and Quinidine, a Query and a Quest, by S. E. Jelliffe (*J. Nerv. & Ment. Dis.* **79**:631 [June] 1934) in which the author analyzes his case and lists the American literature on the subject.

A careful examination may reveal an underlying condition such as anemia or a mental factor that can be corrected. Rest is the logical treatment, but most cases of the disease occur in those who are compelled to work. So far as possible, exposure to cold, especially cold water or ice, should be avoided. Alcohol or other toxic factors should be eliminated. In women during the climacteric, endocrine preparations may be valuable. In cases in which no such etiologic approach is possible, electrotherapy and hydrotherapy are often of benefit. K. A. Ekbom has recently recorded success (Treatment of Acroparesthesia with Acetylcholine: Report of Twenty-One Cases, *Acta psychiat. et Neurol.* **14**:311 [No. 1-2] 1939, abstr. THE JOURNAL, Dec. 2, 1939, p. 2103) with intramuscular injections of acetylcholine 0.1 Gm. daily or every other day.

PROBABLE POLYSEROSITIS

To the Editor:—**A married woman aged 49, with four grown children, seen for the first time in August 1939, complained of a hacking, dry cough, particularly noticeable on rising in the morning. When I saw her she produced a small amount of mucus, slightly blood tinged, which I thought due to the violence of coughing. This coughing had been going on for three or four months prior to my seeing her. A poor appetite may have been a cause for a small loss in weight during the summer. Her appetite is only slightly better now and her weight is stationary at 148 pounds (67 Kg.) She is listless and weepy and she complains of having been sick a good part of her life, but after a good night's rest she is jolly. She always feels better in the morning and worse as the day passes. Noise and visitors fatigue her. She has had transient attacks of pain and aching in both shoulders, alternately and at times over the heart. Motion increases the pain, which may last two days in one shoulder joint and then disappears, reappearing in the other shoulder. So far no other joints have been involved. She had some pleural pain in the left side, followed by the development of a clear yellow transudate in the left pleural sac. Only a few plasma cells and occasional leukocytes were found in the fluid. At this time the right side was normal. I did three left pleural taps, the first two being followed by relief in coughing. Now fluid and crepitant rales have developed in the right side of the chest on auscultation. A chest plate showed general increase in lung markings on the left side and a globular heart shadow with increased shadow to the left. The cardiothoracic ratio is 16: 30. The aortic knob is not visible. Her pulse has been slow and soft. The blood pressure is around 108/70 but often goes down to 102/62. She has such a dark complexion that I at first thought she had Addison's disease. She said that about four years ago she noticed large brown splotches break out on her forearms. I have not used adrenal cortex extract. She is troubled with belching, but there is no abdominal pain except definite tenderness over the gallbladder region. Her bowels are regular once or twice a day and the stools are well formed, but she did say that during the summer she was alternately constipated and diarrheic. There does not seem to be any fluid in the abdomen. Her extremities are normal. There are no heart murmurs, and the heart tones are quiet and distant. A Wassermann reaction was negative, as was also the Mantoux. Sputum tests for tuberculosis were negative. Examination of the urine was negative. White blood corpuscles numbered 6,000, red blood corpuscles 5,000,000, and hemoglobin was 85 per cent. She has had no fever; the temperature is often subnormal and only occasionally rises to 99 F. A tenderness over the gallbladder area has lessened. I have not been able to detect any enlargement of the liver. A cholecystogram showed normal filling and emptying. An electrocardiogram done over a year ago is reported to be negative. The patient had scarlet fever when a child. She says that she was quite ill and that off and on since that time she has had arthritis-like pains in the shoulders. Other details are lacking. A sister died of a stroke at 39. Her father died of a carcinoma. There is no tuberculosis in the family. My impression is that this is Pick's disease, possibly originating from a rheumatic condition associated with pericardial adhesions. She has been in bed for six weeks, and I have been treating her more or less symptomatically. I have put her on salicylates for two weeks and the pain has disappeared. Recently I stopped the salicylates for two days and she again complained of pain over the heart today. I would appreciate any suggestions you might have to offer in the way of a better diagnosis and methods of treatment. Has the severing of pericardial adhesions proved helpful from the surgical standpoint?** **John S. Giffin, M.D., Waterloo, Iowa.**

ANSWER.—In the first place there is no indication of chronic constrictive pericarditis or so-called Pick's disease in this case. For such a diagnosis clear evidence of increased systemic venous pressure must be present with engorged neck veins, enlarged liver, and probable ascites and dependent edema. These things are not evident here. Polyserositis, however, of obscure etiologic type is a probable diagnosis, whether of rheumatic origin or so-called idiopathic or on the basis of disseminated lupus. From the data submitted it is impossible to determine what the polyserositis may be due to. Polyserositis itself may in time be followed by chronic constrictive pericarditis. There may well be slight pericardial effusion as suggested by the increase in the heart shadow, though there is no proof of this otherwise. It should be looked for in further follow-up study. There is no cardiac tamponade evident now. Exploration for pericardial resection is as yet not in order so far as the present situation is concerned, but if more definite evidence should develop in the future of pericardial constriction, resection of the pericardium would then be advisable. There is evident also in this case a large nervous factor, perhaps associated with beginning menopause.

Some important additional information should be obtained, a new electrocardiogram, which should be abnormal, showing low voltage or low or inverted T waves if pericarditis is present, differential count of the white corpuscles to look for eosinophilia, and a follow up of the x-ray study of the heart shadow.

OVARIAN TUMORS AND ESTROGEN PRODUCTION

To the Editor:—**What type of endometrium—proliferative or secreting—is usually found with the following ovarian tumors: theca cell, granulosa cell, dysgerminoma, arrhenoblastoma? Which of these tumors secrete estrogen or progesterone or both?** **M.D., New York.**

ANSWER.—Granulosa cell and theca cell tumors of the ovaries may be classified together, at least on the basis of similar clinical features and common genesis. Hyperplastic endometrium of the "Swiss cheese" variety is commonly found in individuals suffering with these tumors. This hyperplastic change of the endometrium is perhaps more extensively associated with granulosa cell tumors. Increased production of estrogen has been demonstrated in women suffering from either theca cell or granulosa cell tumors, and estrogen in excessive amounts has been extracted from both granulosa cell and theca cell tumor tissues.

Dysgerminomas are rare gonadal tumors often associated with pseudohermaphroditism and various types of sex underdevelopment. They elaborate no estrogenic hormone, but the prepituitary hormone, the follicle stimulating factor, has been found in a case recently reported in the literature. It is authoritatively stated that these tumors exert no sexual influence, but it is felt by some that they may exert weak masculinizing effects. The endometrium in cases of dysgerminoma is always hyperplastic when found in women with sexual underdevelopment. A number of cases have been reported in the literature, however, in which the uterus and its endometrium were entirely normal.

Arrhenoblastomas of the ovaries exert a defeminizing and musculinizing effect. The tumor secretes an abundance of the testis hormone rather than the estrogenic substance. The endometrium usually undergoes an atrophy of a type ordinarily associated with the senile uterus.

TOXIC DOSAGE OF LEAD

To the Editor:—**In the answer to a query concerning the toxicity of lead in chalk (The Journal, Nov. 4, 1939, p. 1755), the statement was made that the usual safe limit of daily lead absorption is 2 mg. per day in breathed air and larger amounts if taken by mouth. I should like to know the evidence on which these statements are based, particularly in view of opinion of authorities as reviewed by Calvery (The Journal, Nov. 5, 1938, p. 1722) that the ingestion of 0.32 mg. of lead per day was considered dangerous.** **J. H. Clark, M.D., Philadelphia.**

ANSWER.—A good recent discussion in the literature of the toxic dose of lead is that by Ferdinand Flurry (Handbuch der experimentellen Pharmakologie, Heffter and Heubner, editors, Berlin, Julius Springer **3**:1575-1889, 1934) and practically all the references to this problem are there discussed. A few references, however, might be added in regard to minimal toxic doses. Dr. Blair Bell states that intravenously the smallest dose that will give symptoms is 100 mg. of colloidal lead in men and 40 mg. in women. By mouth, 5 mg. per kilogram was the smallest dose for acute manifestations. For chronic manifestations, Sollmann gives the figure of 0.2-0.3 mg. of lead per kilogram per day for many weeks, and other authorities all give higher figures than this. In breathing lead-contaminated air, Legge and Goadly, in their book on lead poisoning, state that 2 mg. daily breathed over a long time may cause poisoning after years, and this is the reference on which the usual minimal standard of lead is based. The famous drinker of lead water cited by P. Schmidt is a good example of taking lead by mouth. He drank 2.6 liters of water with a concentration of 2.9 mg. of lead per liter daily. After he had taken 5.3 Gm. of lead in two and one-half years he complained of pain in his calf muscles; after two and one-half years more, when he had taken 12.6 Gm. of lead, he had typical lead poisoning. It may well be that the amount of lead that was in the water was diminishing during these five years. It would also be of interest to look up the article by Kehoe, Thamann and Cholak in the *Journal of Industrial Hygiene* (**15**:306 [Sept.] 1933) in

which it is concluded that "the occurrence of lead poisoning may be expected under conditions in which lead is excreted at a mean rate above 1.1 mg. per day in the feces, and 0.21 mg. per liter in the urine." It is to be expected that conflicting views on the toxic dose of lead will continue to be held until more data are obtained by the newer chemical methods which are capable of determining quantitatively amounts of lead which would be completely missed by the older methods. Further, the susceptibility of different persons varies widely.

FREQUENCY OF URINATION IN YOUNG GIRL

To the Editor:—**A girl aged 4 years had a mild laryngitis for several days in the middle of December 1939. One week later she developed frequency of urination, which is still present. The frequency is only diurnal, occurs every fifteen to forty-five minutes, and is not associated with any pain or irritation. Often just the urge to urinate is present. Physical examination revealed no abdominal masses and no dilated bladder; the external genitalia showed no inflammation or discharge present. The temperature is normal and so is the pulse rate. The patient has a good appetite and is otherwise well developed. Her fluid intake has not increased. She was hospitalized to determine the cause of the frequency. Laboratory examination revealed blood nonprotein nitrogen 30 mg., urea nitrogen 14 mg., blood sugar 90 mg. and creatinine 1.3 mg. per hundred cubic centimeters of blood. The dextrose tolerance test showed a normal curve. Urinalysis (repeated) showed albumin negative, sugar negative, no white blood cells, no red blood cells and no casts. Vaginal as well as urine smears showed the absence of organisms and trichomonas. Catheterized urine specimens revealed no growth as culture. The urine was either neutral or alkaline. The residual urine was 40 cc. The blood Kline reaction was negative. The red and white blood counts as well as the hemoglobin tests were normal. The tuberculin test (1:1,000 old tuberculin) was strongly positive, so much so that the patient's temperature increased by from 1 to 1.5 degrees for three days during the height of the reaction. A roentgenogram of the chest showed nothing abnormal. The grandmother died of tuberculous peritonitis ten months ago. The patient feels well but the frequency is still present. Please advise as to diagnosis and further laboratory procedures to determine the cause. The administration of tincture of belladonna and phenobarbitol have not produced relief.**

M.D., Ohio.

ANSWER.—The frequency of urination may be due to one of several causes. The history reveals that the grandmother had tuberculosis and presumably was in contact with the child. The child is said to have a strongly positive tuberculin reaction. These two facts would call for a careful investigation of the urine for the presence or absence of tubercle bacilli. It might be necessary to concentrate the urine or obtain a catheterized specimen, which could be injected into a guinea pig in a search for the tubercle bacilli.

An intravenous pyelogram or further urologic study of the bladder and genito-urinary tract might be indicated in an attempt to discover a tuberculous lesion or other abnormalities which might be the basis for frequency of urination.

Sometimes central lesions in the brain may cause this symptom. A tuberculoma of the brain should be thought of in this case.

Diabetes insipidus may cause frequency in urination. The urine in such cases is of low specific gravity.

The symptoms may be on a neurogenic basis or some other central condition. An eyeground examination and a careful neurologic examination would be of value in determining a central cause for the condition.

VITAMINS IN CHRONIC ALCOHOLISM

To the Editor:—**Please outline the latest treatment for alcoholism for a patient on the verge of delirium tremens. I know there is almost complete avitaminosis in this condition and vitamin B_1, vitamin C and nicotinic acid are especially indicated. Please advise as to dosage and other measures.**

M.D., North Dakota.

ANSWER.—Strictly speaking, vitamin therapy is not a treatment of alcoholism, but it frequently is of value in the treatment of the hypovitaminosis that accompanies chronic alcoholic addiction. This lack of vitamins is chiefly the result of the failure of addicts to eat sufficient vitamin-containing food. While the failure results in a lack of all of the food-contained vitamins, the most common clinical indication of vitamin lack is the occurrence of peripheral neuritis. This condition, formerly known as alcoholic neuritis, has been found to yield to therapy with thiamine hydrochloride (vitamin B_1). Hence the specific indication for thiamine is the occurrence of peripheral neuritis. This substance may be given in doses as high as 50 mg. daily and must be continued over a period of several weeks. Treatment may be begun with daily intravenous injection of from 20 to 50 mg. of thiamine hydrochloride. After two weeks, oral administration of thiamine may be employed with the same dosage, or the intravenous dose may be reduced. Treatment should be continued until the patient is relieved of the symptoms of neuritis.

Delirium tremens, another phase of alcoholism and usually precipitated by some injury or acute infection, does not respond well to thiamine hydrochloride. Another factor of the vitamin B complex, nicotinic acid, in many instances has been found to be effective here. Doses of from 0.3 to 0.5 Gm. are necessary. If a good response is obtained it will become evident in from twenty-four to forty-eight hours. While these doses are much larger than those usually employed when using nicotinic acid, unfavorable side effects have not been reported. The patient's skin may become flushed and he may describe a generalized feeling of warmth. It should not be necessary to continue the oral administration of from 0.3 to 0.5 Gm. daily for more than two or three days. The treatment of peripheral neuritis is a long range affair but that of delirium tremens is an acute emergency.

CIRCULATION AFTER CUTTING VEIN

To the Editor:—**In an operation, blood vessels are cut and the closed circuit of the cardiovascular system ceases to be a closed circuit so far as the cut vessels are concerned. At the time of the cutting, the cut veins contain blood. A portion of this blood flows back into the wound. What happens to the blood that remains in the cut veins? The cardiac contractions can no longer supply to them pressure from behind, and many of them are so situated that adequate help from pressure occasionally exerted by externally placed skeletal muscles is out of the question. How does the blood remaining in the cut veins get back to the heart?**

Edward E. Cornwall, M.D., Brooklyn.

ANSWER.—The presence of valves beyond the cut in the veins and the so-called venopressor mechanisms which create intermittent pressure on the remaining veins are sufficient to ensure that the blood remaining in the cut veins gets back to the heart. This applies, of course, to the veins between the cut and the heart. The venous blood flow is dependent not only on the residue of pressure remaining after the arterial blood passes through the arterioles, capillaries and venules but in addition is dependent to a large extent on the venopressor mechanisms, consisting (1) of the massaging action of skeletal muscles during their contraction and, to a lesser extent, during the tetanic twitching which constitutes muscle tone, (2) of the intermittent compressing action of the diaphragm during inspiration on the abdominal contents, including the blood in the veins, and (3) of the intermittent aspiration during inspiration created by the increase in negative intrathoracic pressure.

Gravity, depending on the position of the patient, would aid the venous return when the vessel is open.

Only a small portion of the cut vein will be separated from the closed cardiovascular circuit, since veins have a rich system of collaterals. The cut vein will empty its contents by a reflex tonic contraction of its musculature, and eventually the part distal to the venous valve will become fibrosed.

BOILS AND CARBOHYDRATE METABOLISM

To the Editor:—**What is the present view of the role of a high carbohydrate diet in the etiology of recurrent boils? Is there any evidence to indicate that a change of diet in any way predisposes to this condition so long as it is adequate in respect to all essential food factors? Could you suggest any references?**

J. G. Sheps, M.D., Eriksdale, Man.

ANSWER.—Osler, in the 1898 edition of his textbook (Osler, William: Practice of Medicine, ed. 3, p. 425) mentions boils and carbuncles as extremely common in diabetes. The skin is dry and harsh, sweats rarely, except in an occasional case in which drenching sweats alternate with polyuria. Eczema occurs and at times an intolerable itching, especially located on the genitalia. This was the picture of diabetic skin in the preinsulin period. Not only the loss of resistance due to the general reduction of health by the metabolic disturbance but, added to this, the dry skin and intense itching predisposed to infection of the hair follicles, which resulted in boils and carbuncles. This has led to an idea quite general in the medical mind that all patients with boils have a defective sugar metabolism and that the dietary carbohydrates must be cut down to a minimum in order to aid recovery.

Tauber in 1933 came out in opposition to this idea and backed up his criticism of it by statistics (Tauber, E. B.: Hyperglycemia in Diseases of the Skin, *Arch. Dermat. & Syph.* **27**:198 [Feb.] 1933). In his series of 514 diabetic patients only eighteen had furuncles, which good result he ascribes to the present day successful management of the disease. In 217 cases of cutaneous disease, including "seborrheic eczema, furunculosis and other pyodermias, dermatitis venenata, scabies, lupus, tinea and burns," he found no disorder of carbohydrate metabolism, blood sugar determinations ranging from 82 to 96 mg. per hundred cubic centimeters.

To test the matter further, he treated 189 cases of furunculosis by local applications of physiologic solution of sodium

chloride or weak solution of aluminum acetate and gave the patients a diet high in carbohydrates (Wenckebach No. 3) plus feedings of liver extract. In addition to this he gave daily injections of 5 per cent dextrose solution, 500 cc. intravenously. The feeling of pain and tension subsided in most cases after the second injection and the signs of inflammation diminished. In half the cases, the boil slowly absorbed without suppuration or sloughing. In only four of the 189 cases did a second boil appear, and in only one case was there a third one.

This experience seems to demonstrate not only that hyperglycemia is not a common accompaniment of furunculosis but that in many cases of furunculosis in which hyperglycemia has been ruled out recovery is aided by a diet high in carbohydrates and the intravenous injection of dextrose solution.

A dietary deficiency producing cutaneous changes such as the dryness of the skin in vitamin A deficiency can be expected to reduce resistance and predispose to follicular infection; but there is no reason to think that any diet "adequate in respect to all essential food factors" could so predispose unless there were some underlying disorder such as a disturbance of sugar metabolism. The careful search for such disturbance continues to be a prime requisite in the investigation of every case of furunculosis.

ANIMAL PARASITES AND MAN—CHLORINATION OF WATER

To the Editor:—1. Tenants in my seashore cottage last summer had dogs heavily infested with tapeworms and probably other things. The floors are of pine boards with wide interspaces to collect dust. It seems impossible really clean the house. Is there danger of infection, human or canine, from ova after the winter? 2. Our town water supply has been contaminated for years by herds of cows and flocks of sheep grazing about the pond and wading in the water to drink. My repeated complaints have been without effect on the local health officers and the state Department of Health at Providence disclaims jurisdiction. The water is heavily chlorinated. Will chlorination destroy the ova of animal parasites? Is not heavy chlorination of drinking water over years injurious to human beings? We have a record of a very high incidence of "appendicitis" and other gastrointestinal complaints among the native population, and many members of the summer colony, like myself, are forced to buy spring water for drinking and even cooking purposes.

M.D., Rhode Island.

ANSWER.—1. The only animal parasite of importance that may be acquired from dog feces is Echinococcus granulosus (hydatid cyst); the dog is infected via the ingestion of the raw flesh of infected sheep. The chance of infection with Dipylidium caninum is slight; only about 100 human cases have been reported.

2. (*a*) Chlorination does not destroy the ova of animal parasites.

(*b*) It is as yet open to question whether the ingestion of heavily chlorinated water over a long period of time is injurious to man. To date there is no direct and indubitable evidence of a harmful effect.

(*c*) The ingestion of materials heavily contaminated with bacteria not infrequently gives rise to gastrointestinal disturbances even though the bacteria are relatively nonpathogenic per se (as the colon bacillus) or killed by some pasteurization or sterilization process.

HIGH PULSE PRESSURE IN YOUNG ATHLETE

To the Editor:—What is the significance of a systolic blood pressure of 142 and a diastolic of 40 in an athlete aged 21? He is a boxer and in otherwise splendid condition. The Wassermann reaction is negative. Repeated blood pressure recordings have been made.

Stanley M. Gates, M.D., Monticello, Ark.

ANSWER.—Habitual exertion, such as occurs in physical training, frequently results in a gradual fall of the diastolic tension (Scott, V. T.: Effects of Daily Exercise on Pulse and Arterial Pressure, *Mil. Surgeon* **55**:334 [Sept.] 1924). Violent exertion, such as occurs in boxing or running, increases the systolic tension and may result in some left ventricular hypertrophy. A systolic tension of 142 in a man aged 21 is, however, distinctly abnormal. One would wish to know more of the family history and past illnesses, particularly those in which occult renal injury may have occurred. Though the heart is obviously compensated at present, this does not preclude the possibility of organic defect. Thorough investigation by a 2 meter x-ray film, electrocardiogram and ascultation before, during and after exertion are urgently indicated. Aortic regurgitation is not an impossibility to account for the excessive pulse pressure. Such valvular lesions are occasionally discovered in athletes in otherwise excellent physical condition and with exceptional stamina and reserve for violent effort (Jokl, Ernst, and Suzman, M. M.: Aortic Regurgitation and Mitral Stenosis in a Marathon Runner, THE JOURNAL, Feb. 10, 1940, p. 467).

It is most important to know whether the diastolic tension was read at the fifth phase of silence or at the muffling of tone, the fourth phase. If the point of onset of the fifth phase was used, the error may be considerable: from 5 to 55 mm. (Melvin and Murray, *Quart. J. Exper. Physiol.* **45**:1891, 1924). In certain pathologic states the fourth phase may be greatly prolonged and the beginning missed. As a source of error this possibility must be given due consideration.

Though a reading of 142/40 is unusual at any age, and particularly exceptional in young, presumably healthy, individuals, further study of the case should reveal an explanation. It is impossible to do more than suggest possible causes for these phenomena on the basis of the data submitted.

PREPARING FUNGUS EXTRACTS

To the Editor:—I would greatly appreciate any advice given for preparing extracts of cultures of skin fungus for subcutaneous injection.

L. F. Friedmann, M.D., Belize, British Honduras.

ANSWER.—Extracts of fungi can be prepared by two general methods. One commonly used for nonpathogenic fungi and also applicable to pathogenic fungi is as follows: The fungus is usually inoculated on a liquid medium such as Sabouraud's and allowed to grow at room temperature until sufficient maturity has been reached as judged by the production of a typical color or by the cessation of the growth. This usually takes from about ten days to three weeks. At the end of this period the fluid is drained off and discarded and the pellicle is killed by immersion in 95 per cent alcohol for from twenty-four to forty-eight hours. The pellicle is then dried and ready for extraction. The moist pellicle, prior to killing with alcohol, can be also extracted. The extracting fluid usually employed is a glycerosaline solution containing 50 per cent glycerin. After about twenty-four hours' extraction the material is filtered and the fluid sterilized by Seitz filtration. After routine testing for sterility, the material is ready for use when properly diluted.

Pathogenic fungus extracts are also commonly prepared by extracting the organisms with the medium in which they are grown, filtering the latter and using the fluid as the extract.

SEROLOGICALLY POSITIVE BLOOD SQUIRTED INTO EYE

To the Editor:—A physician treated a subungual hematoma by incision and digital compression, which compression caused some blood to squirt and enter his left eye. This accident occurred almost a month ago and immediately after the accident he treated his left eye with 20 per cent solution of mild protein silver. He took a blood specimen of his patient, which showed positive Kline and doubtful Kahn reactions. I started treatment with neoarsphenamine immediately and have given him five injections thus far. I have also treated his eye with 1 per cent yellow oxide of mercury ointment. Since the accident occurred three weeks ago, I have not been able to discern any clinical evidence of infection or any primary lesion of the sclera, cornea or conjunctiva of the eye. Ophthalmoscopic examination has revealed no pathologic changes in the eyegrounds to date. Since there are no other clinical evidences of the presence of syphilis, I am planning to give him a series of only ten neoarsphenamine injections. Will it be safe to say that there is no infection if no clinical evidence appears sixty days after the accident? Do you suggest that I start a series of bismuth injections after completing the arsenicals?

M.D., Ohio.

ANSWER.—The chances are that the physician-patient would not have contracted an infection from the small amount of blood which squirted into his left eye. As the patient has been already started on therapy, it puts both physician and patient in somewhat of a dilemma. It is similar to the man who has a suspected lesion on the penis and on whom treatment is started at once without the making of a positive diagnosis of syphilis. There is no such thing as half way measures for the treatment of syphilis. One either treats the patient fully or waits and keeps him under observation until a positive diagnosis can be made. Under the circumstances there seems to be no other course but continue the treatment just as if he had contracted syphilis.

The injections of neoarsphenamine should be continued until a total of ten have been given. The first injection of bismuth subsalicylate should be given with the last of neoarsphenamine and continued for a course of six injections, followed with another series of ten injections of neoarsphenamine, and this in turn with eight further injections of bismuth subsalicylate, ending with a short course of eight injections of neoarsphenamine and a final ten injections of bismuth subsalicylate. It is recommended that thereafter the patient be kept under observation, a serologic blood test being taken once in three months for the first year and twice a year thereafter. It is also suggested that a serologic blood test be taken at the end of each course of treatment.

PSORIASIS AND DIAGNOSIS OF SYPHILIS

To the Editor:—A young man has a rash over his body that resembles psoriasis, and a pathologist reports psoriasis from a biopsy. From twelve Wassermann reports he has had four positive and the rest negative. He has received some antisyphilitic treatment from various physicians at different intervals for the last ten months, at one time receiving treatment continuously for a period of twenty weeks, at which time he received ten injections of neoarsphenamine and ten of bismuth in oil. During and following this treatment the lesions were no better. He has been to various good dermatologists, who all tell him after the original examination that he does not have syphilis. At a later date they get a positive Wassermann reaction and even though they have several negative Wassermann reactions they tell him that he has syphilis. The patient is married and has two children, aged 2 and 4 years, both well and with a negative Wassermann reaction. His wife is also well and has had six negative Wassermann reactions over the past eight months. I know that in certain conditions the Wassermann report is positive. Is psoriasis one of these conditions and in about what percentage of the cases does this appear? Am I justified in giving him antisyphilitic treatment with this history? How can I definitely prove to him that he does or does not have syphilis?

M.D., Alabama.

ANSWER.—Psoriasis is not among the conditions that tend to produce nonspecific or false positive "Wassermann" reactions. Of course, it is possible that a patient may coincidentally have psoriasis and syphilis, and likewise an occasional patient is seen who manifests a recurrence or relapse of the syphilis in the form of psoriasis-like plaques at the common sites for psoriasis, namely the extensor surfaces. The other diagnostic possibility offered by this patient is that he has psoriasis and is producing false positive serologic tests from some other cause.

The four positive and eight negative serologic reactions in the absence of clinical signs and no history of syphilis are not sufficient grounds on which to start treatment. The spinal fluid should be examined and, if found to be positive, the diagnosis of syphilis is then tenable. If the cerebrospinal fluid is negative, a specimen of blood should then be drawn, divided into four parts and one part sent to each of four laboratories. The reports from these combined tests might then be the basis for the decision with regard to the subsequent course for this patient. If the reports are in the main negative or if one or two of them are weak positives, the patient should be placed on observation and have serologic rechecks and a reexamination every six months for several years. On the other hand, if the majority of the reports are conclusively positive, this should be a sufficient ground for the diagnosis of syphilis and the institution of treatment.

It is not always possible to prove definitely to a patient that he does or does not have syphilis. Time with repeated serologic tests and reexaminations is often necessary to establish the diagnosis or prove the absence of the disease.

HEPARIN AND EMBOLISM

To the Editor:—A woman aged 42 has had rheumatic valvular heart disease for more than twenty years. There have been four episodes of right cerebral embolism in the last five years, the last attack occurring today. The origin of these emboli is evidently a mural thrombus in the left auricle. Has heparin been used in the treatment of such a case? The blood pressure ranges around 129/90. The pulse rate remains about 80 with a digitalis dosage of 25 minims (1.5 cc.) of the tincture each morning.

W. A. W. Switzer, M.D., Ridgway, Pa.

ANSWER.—It is possible that heparin may have been used in the attempt to prevent mural thrombosis in the auricles of a rheumatic heart in the absence of any active process in the way of acute rheumatism or bacterial endocarditis, but there has been little or nothing written of such an experience if it has been tried. It is hardly a practical measure, since the heparin must be given intravenously and would have to be administered repeatedly or for long periods in such a case as the one cited, in which there were evidently a good many months between embolic accidents. Thus, such treatment would be a different and even more difficult matter than that in coronary thrombosis and bacterial endocarditis, in which conditions experimental therapy has not yet yielded the adequately favorable results that were at first hoped for.

FRACTURE OF THYROID CARTILAGE

To the Editor.—I should like information with regard to the frequency with which fracture of the thyroid cartilage either on one or both sides occurs in accidental injuries. I should also like to know what the prognosis is with regard to complete healing of these fractures.

M.D., Arizona.

ANSWER.—L. A. Stimson (Fractures and Dislocations, Philadelphia, Lea & Febiger, 1912, p. 189) was able to collect twenty-four cases of fracture of the thyroid alone and published reports in the literature. Among these there were eighteen deaths and six recoveries. There were five cases of fracture of the thyroid cartilage and hyoid bone with three deaths and two recoveries. There were nine cases of fracture of the thyroid cartilage and the cricoid cartilage, all fatal. There were two cases of fracture of the thyroid cartilage, cricoid cartilage and hyoid bone, with death. There were also two fatal cases of fracture of the thyroid cartilage, cricoid cartilage and trachea. Further details of these series are given by William Hunt (Fractures of the Larynx and Ruptures of the Trachea, *Am. J. M.* **51**:378 [April] 1866) and Albert Hénocque (Traumatic Fractures of the Larynx, *Gaz. hebd. de med.* **5**:610 [Sept. 26], 625 [Oct. 2] 1868).

As Kellogg Speed (Fractures and Dislocations, Philadelphia, Lea & Febiger, 1928) said, prognosis is grave. "Primary death followed from suffocation after increasing dysoemia, emphysema or edema of the glottis." Tracheotomy is practically always indicated. The prognosis with regard to complete healing is doubtful. It may be necessary to wear a tracheotomy tube permanently.

IMMUNOTRANSFUSIONS IN LEUKEMIA

To the Editor:—A patient has recently told me of a reported immunotransfusion treatment for leukemia. His story is that a mother, given the blood from a child having leukemia, later gave life-saving transfusions to the same child. The mother also was used as a source of transfusions to cure leukemia in other patients subsequently. Is there any basis for this report?

M.D., Idaho.

ANSWER.—There is no good evidence that immunotransfusions of the sort described are of any value in leukemia in man. In certain kinds of transmissible leukemia of animals such effects have been described. But this condition, although superficially similar, is apparently an entirely different disease from that occurring in man. Transfusions of any normal blood may be of considerable temporary benefit in leukemia.

VESICOPERINEAL FISTULA AFTER RESECTION FOR CANCER

To the Editor:—What are the chances for a vesicoperineal fistula closing spontaneously? What, if anything, can be done if closure does not occur? This followed an abdominoperineal resection of a rectal carcinoma that was adherent to the bladder in the region of the trigon.

M.D., New York.

ANSWER.—In view of the fact that this patient had a resection for a cancer of the rectum that was adherent to the bladder, suspicions are naturally aroused concerning the possibility of recurrence, which may be a factor in the persistence of the vesicoperineal fistula. Therefore the first thing to do is to make a careful cystoscopic examination to determine whether or not the patient has cancer of the bladder. In addition the patient should have a careful examination in order to determine whether the cancer of the rectum has recurred. Naturally if the patient has had recurrence in loco and if he has cancer of the bladder, the cause of the fistula is self evident. If these two possibilities can be excluded, one might try to close the fistulous tract. A simple procedure that might be employed is one that is used in suprapubic fistulas, namely the use of a fulguration electrode. The fulguration may be repeated once or twice, but not oftener than once in four weeks. If the fulguration treatment fails to relieve the patient and if there are no signs of cancer, it might be well to discuss the advisability of operating on the patient. The nature of the operation will depend somewhat on what is found. If possible an attempt should be made to mobilize the bladder and close it by suture.

RHEUMATOID ARTHRITIS OR TUBERCULOSIS

To the Editor:—A man with a severe case of rheumatoid arthritis has a normal sedimentation rate. For one year I gave him autogenous vaccine, which seemed to improve his condition up to a certain point. This was followed by intravenous sulfur treatment, which apparently gave no results. Next I tried massive doses of vitamin D, which gave no results. Then I gave weekly doses of sodium iodide solution. Shortly after I began these treatments large fluctuating masses arose on the back of both wrists. These I considered to be panniculitis. On opening one of these masses I obtained a sterile serum and numerous little egg-shaped masses of fat. Would you consider this panniculitis and, if so, what do you consider the best treatment for it? Anything you may be able to advise me in the line of treatment for this patient will be greatly appreciated.

L. Jackson Lanich, M.D., Cumberland, Md.

ANSWER.—Severe rheumatoid arthritis with a normal sedimentation rate is most unusual, although it may occur. A more detailed clinical record would enable one to state with more certainty whether or not this diagnosis is correct, and therefore one would be in a much better position to advise as to further therapy. It is not surprising to learn that the patient did not respond to treatment with antogenous vaccine, intravenous sulfur or massive doses of vitamin D. This is the usual experi-

ence with these forms of therapy. The large fluctuating masses which finally appeared on the dorsum of the wrists were probably due to an associated tenosynovitis. The nature of the material aspirated is consistent with fluid obtained in some cases of rheumatoid arthritis. The small bodies may have been the rice bodies of tuberculosis. In order to be absolutely certain, one might reaspirate and inject some of the fluid into a guinea pig and thereby rule out tuberculosis. If they are not tuberculous in nature, conservative treatment is indicated.

AIRPLANE FLIGHTS AND DEAFNESS—OTOSCLEROSIS

To the Editor:—From time to time cases have been reported in which deafness has been relieved by an airplane flight. I am writing to inquire as to the rational explanation. 1. What type of deafness is relieved by this procedure? 2. If the barometric pressure is a factor, just how does it operate? 3. Is relief obtained through ascent or descent in the airplane? 4. Are surgical measures such as endaural fenestration to be generally recommended for middle ear deafness? I would appreciate any additional information or references with which you might supply me in regard to the treatment and prognosis in cases of otosclerosis.

M.D., Tennessee.

ANSWER.—1. Presumably deafness due to obstructions of the eustachian tubes.

2 and 3. By increasing air pressure on descent, air could be forced into closed eustachian tubes or the rarefied air on ascent could allow air under greater pressure in middle ears to escape through the eustachian tubes. The former would be comparable to performing the Valsalva experiment; the latter is comparable to the creating of artificially lowered pressure into the nasal chamber by forcibly drawing air into the nostrils.

4. Only when the ears are dry, the nerve function and general physical condition good and the patient prefers a surgical operation to wearing a modern electrical hearing aid.

In cases of otosclerosis the prognosis is bad. The treatment can be satisfactorily outlined only by a competent otologist, under whose direction the patient should place himself. The use of an electrical hearing aid and lip reading are recommended.

BRADYCARDIA IN JAUNDICE

To the Editor:—I should like to know the explanation for the bradycardia present in clinical jaundice.

M.D., Michigan.

ANSWER.—Bradycardia as a result of jaundice has been observed for many years but there is still no clearcut explanation for it. Many theories have been advanced and later rejected. At the present time the most widely accepted explanation predicates the bradycardia resulting from vagal stimulation due to the presence of bile salts in the blood. This explanation has some experimental backing. Injection of bile salts into the blood of young dogs will produce bradycardia but a similar effect is often lacking in older animals. Another hypothesis has to do with the combination of bile salts with calcium, thus reducing the irritability of the heart muscle.

Neither of these nor any other theory has been definitely proved.

CHOICE OF MATERIAL IN ARTIFICIAL LIMB

To the Editor:—In supplying a patient (an adult aged 21) with an artificial leg, is one made of wood or one made of airplane metal or of so-called fiber preferred?

M.D., Connecticut.

ANSWER.—Surgeons who have had wide experience in the fitting of artificial limbs do not agree in all instances with regard to the choice of materials for the manufacture of such legs. Needless to say, manufacturers of each of the three types of limbs mentioned can supply rather impressive arguments tending to show that the material which they may happen to use is the most desirable. A metal or fiber leg cannot be altered as easily as can a wooden leg. There is little difference in the weight when the leg is completed. If the patient works outdoors in varying temperatures the metal leg will become chilled much more quickly, as it is a better conductor than either the wooden or fiber limb. The socket for a metal or fiber leg is made by stamping it out. If the model and the measurements are absolutely accurate from the beginning, this is of course quite satisfactory. On the other hand it is frequently necessary to make some slight alterations in order to provide a more perfect fitting, and changes cannot be made so easily in the case of the metal or the fiber leg. The argument has also been presented that lengthening or shortening of the wooden leg may be accomplished more neatly and more quickly. It is believed that the artificial leg made of wood is to be preferred for the average patient.

SMALLPOX VACCINATION ON BACK

To the Editor:—Is it recognized as good routine practice to vaccinate babies for smallpox on the back? If so, in what region should the child be vaccinated? I would appreciate an early reply.

M.D., Wyoming.

ANSWER.—It is not recommended generally as good routine practice to vaccinate babies on the back for smallpox. When vaccination is done on the back, a site high up over the left scapula is sometimes chosen. Vaccinations in this locality are seen more often probably on European women than on women in this country. It seems likely that vaccinations on the shoulder posteriorly are no more objectionable than vaccinations on the leg. Ordinarily the area above the insertion of the left deltoid is given preference.

ANTIRABIC TREATMENT AND RAT BITE

To the Editor:—A 3 year old boy was bitten several times by a rat. He was taken to the hospital and under gas-oxygen anesthesia the wounds were cauterized carefully with fuming nitric acid. Would you advise vaccinating him against rabies?

M.D., Massachusetts.

ANSWER.—The rat, like other mammals, is susceptible to rabies. If the dictum "safety first" is to obtain in such cases as the one mentioned the patient would have to be given antirabic treatment.

SULFAPYRIDINE AND PNEUMONIA

To the Editor:—The answer to the question about sulfapyridine and prophylaxis of pneumonia (The Journal, April 27, p. 1689) should not pass unchallenged. While the first sentence of the reply is valid, it hardly seems wise, in the light of present knowledge, to state that the "signs and symptoms of an actual involvement of the bronchi and lungs" constitute an indication for treatment with sulfapyridine. It is not only "a good practice" but a rigid necessity to attempt to determine the cause of the infection before treating it. It is highly doubtful that "sulfapyridine now constitutes the sheet anchor in the treatment of acute infectious pulmonary disease." If the statement were limited to acute pulmonary disease caused by pneumococci or hemolytic streptococci it would be more in keeping with established facts. In my recent experience (*Arch. Int. Med.* 65: 138 [Jan.] 1940) a form of pneumonia caused by an agent other than these bacteria was more prevalent than pneumococcic or streptococcic pneumonia. Sulfapyridine was found to be of no value in this type of infection and actually increased the discomfort of the patient. In certain cases, however, it is admittedly difficult to decide whether or not to use the drug. For example, if pneumococci of certain types (I, II, III, V, VII, VIII or XIV) are present in the sputum in cases of atypical pneumonia it may be difficult to decide whether they are actually causing pneumonia or are potential invaders. In such circumstances the patient should probably be given the benefit of the doubt and given the drug. Until further facts are known, the decision rests largely on accurate observations and good judgment. At any rate there is at present no justification whatever for the routine use of sulfapyridine for the prevention of pneumonia. In the same issue of The Journal, page 1605, Brown, Thornton and Wilson state that "the range between adequate blood concentrations [of sulfapyridine] and those which carry an unwarrantable risk of serious toxicity has been shown to be so narrow as to provide justification for a more conservative approach to the chemical treatment of pneumonia and to constitute a valid argument against the indiscriminate substitution of sulfapyridine for sulfanilamide in nonpneumococcic infections."

Hobart A. Reimann, M.D., Philadelphia.

FRIGIDITY IN WOMEN

To the Editor:—Under the title "Frigidity in Women" in the May 11 issue of The Journal there is a criticism by Dr. A. L. Wolbarst (p. 1952) of the answer to Dr. Dunn's inquiry on March 23, page 1100. Dr. Wolbarst says: "The answer to Dr. Dunn's inquiry regarding frigidity in women fails to mention a form of frigidity which may be considered constitutional and perhaps hereditary." He then describes a case and says in the last paragraph: "At the examination it was found that there was no response sensation whatever at the clitoris or in the vagina either to manual manipulation or the electric current. She was absolutely anesthetic in those regions." This condition is, however, fully described in the original answer (third paragraph) as follows: "There is another form of frigidity due to an organic condition in women, namely partial or complete sexual anesthesia in the vaginal mucous membrane. This condition has been described by Huhner (The Diagnosis and Treatment of Sexual Disorders in the Male and Female Including Sterility and Impotence, Philadelphia, F. A. Davis Company). One must have experience however in making this diagnosis, as different portions of the female genital tract have different degrees of sensitivity."

Max Huhner, M.D., New York.

"GATCH" BED

To the Editor:—With regard to the query on page 1579 of The Journal for April 20 as to the meaning of the term "gatch" in connection with hospital beds, there are two schools of thought on this subject. The response in The Journal is representative of one. The other is conditioned on an article by Dr. W. D. Gatch in the *Annals of Surgery* 49: 410, 1909, with one illustration of the principle. The title of the article is "The Sitting Posture: Its Postoperative and Other Uses, with a Description of a Bed for Holding a Patient in This Position."

Ramsay Spillman, M.D., New York.

Medical Examinations and Licensure

COMING EXAMINATIONS

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, June 15, page 2407.

STATE AND TERRITORIAL BOARDS

ALASKA: Juneau, Sept. 3. Sec., Dr. W. W. Council, Box 561, Juneau.

ARIZONA: Phoenix, July 2-3. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

CALIFORNIA: *Oral examination* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), Los Angeles, July 15. *Written examination.* Los Angeles, July 15-18. Sec., Dr. Charles B. Pinkham, 1020 N St., Sacramento.

CONNECTICUT: *Written.* Hartford, July 9-10. *Endorsement.* Hartford, July 23. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* Derby, July 9-10. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: *Examination.* Dover, July 9-11. *Reciprocity.* Dover, July 16. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, Oct. 21-22. Sec., Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: *Basic Science.* Gainesville, Nov. 1. *Applications must be on file not later than Sept. 16.* Sec., Dr. John F. Conn, John B. Stetson University, De Land.

GEORGIA: Atlanta, June. Joint-Sec., Mr. R. C. Coleman, 111 State Dr. George C. Ruhland, 203 District Bldg., Washington.

IDAHO: Boise, Oct. 1. Dir., Bureau of Occupational License, Mr. H. B. Whittlesey, 355 State Capitol Bldg., Boise.

ILLINOIS: Chicago, June 25-27. Superintendent of Registration, Mr. Lucien A. File, Springfield.

IOWA: *Basic Science.* Des Moines, July 9. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MAINE: Augusta, July 2-3. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: Boston, July 9-11. Sec., Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: *Basic Science.* Detroit, June 28-29. Pres., Dr. R. C. Houston, East Lansing.

MISSISSIPPI: Jackson, June 26-27. Asst. Sec., Dr. R. N. Whitfield, Jackson.

MONTANA: *Reciprocity.* Helena, Sept. 30. *Written.* Helena, Oct. 1-2. Sec., Dr. S. A. Cooney, 216 Power Block, Helena.

NEBRASKA: *Basic Science.* Lincoln, Oct. 1-2. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, 1009 State Capitol Bldg., Lincoln.

NEVADA: *Reciprocity with oral examination.* Aug. 5. Sec., Dr. Fred M. Anderson, 215 N. Carson St., Carson City.

NEW MEXICO: Santa Fe, Oct. 7-8. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 24-27. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, 315 Education Building, Albany.

NORTH DAKOTA: Grand Forks, July 2-5. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OREGON: *Basic Science.* July 6. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: *Written.* Philadelphia and Pittsburgh, July 9-11. *Bedside.* Philadelphia, July 12-13. Dir., Bureau of Professional Licensing, Dr. James A. Newpher, 358 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 3. Sec., Dr. O. Costa Mandry, Box 3854, Santurce.

RHODE ISLAND: Providence, July 10-11. Sec., Division of Examination, Dr. Robert M. Lord, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 25. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: *Medical.* Rapid City, July 16-17. Dir., Medical Licensure, Dr. J. F. D. Cook, Pierre.

UTAH: Salt Lake City, June 24-26. Dir., Department of Registration, Mr. G. V. Billings, 324 State Capitol Bldg., Salt Lake City.

WASHINGTON: *Basic Science.* Seattle, July 11-12. *Medical.* Seattle, July 15-17. Sec., Department of Licenses, Mr. Nelson N. Vaughen, Olympia.

WEST VIRGINIA: Huntington, July 1-3. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

Iowa March Report

Mr. H. W. Grefe, director, Division of Licensure and Registration, reports the written examination held at Des Moines, March 4-6, 1940. The examination covered eight subjects and included 100 questions. An average of 75 per cent was required to pass. Seven candidates were examined, five of whom passed and two failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Chicago College of Medicine and Surgery		(1917)	84.9
Rush Medical College		(1939)	85*
Tufts College Medical School		(1930)	85.3
Creighton University School of Medicine		(1938)	83.3
Medizinische Fakultät der Universität Wien		(1935)	88.9

School	FAILED	Year Grad.	Number Failed
Medizinische Fakultät der Universität Wien		(1935)	1
Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn		(1920)	1

Twelve physicians were licensed by reciprocity and four physicians were licensed by endorsement from January 31 through March 18. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1935)	Arkansas
Northwestern University Medical School		(1934)	Illinois
University of Kansas School of Medicine		(1938)	Kansas
University of Maryland School of Medicine and College of Physicians and Surgeons		(1924)	Maryland
University of Michigan Medical School		(1924), (1935)	Michigan
St. Louis University School of Medicine		(1922)	Missouri
Washington University School of Medicine		(1935), (1936, 2)	Missouri
Creighton University School of Medicine		(1925)	Nebraska
University of Rochester School of Medicine		(1934)	Maryland

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Yale University School of Medicine		(1936)	N. B. M. Ex.
Duke University School of Medicine		(1934)	N. B. M. Ex.
University of Toronto Faculty of Medicine		(1934)	N. B. M. Ex.
Medizinische Fakultät der Universität Wien		(1935)	N. B. M. Ex.

* License has not been issued.

Book Notices

Principles and Practice of Aviation Medicine. By Harry G. Armstrong, B.S., M.D., Capt., Medical Corps, United States Army. Cloth. Price, $6.50. Pp. 496, with 86 illustrations. Baltimore: William Wood & Company, 1939.

Out of a tremendous personal experience and out of a review of more than 4,000 separate papers on the subject, Captain Harry G. Armstrong, of the Medical Corps of the United States Army and director of the Aero Medical Research Laboratory, has provided the medical profession with a textbook on the principles and practice of aviation medicine that constitutes an epoch in this field. Here is the one book which makes available to the physician advice necessary to examine pilots, to inform patients about flying and to take care of many of the illnesses and emergencies associated with modern aviation.

The book begins with an excellent statement on the history of aviation and on its medical aspects. Then comes a discussion of the flight surgeon and all the details involved in the selection of pilots, including references not only to the eye and the heart and to the ear, nose and throat, but also to the general physical examination and neuropsychic examination. A chapter on the care of the flier is followed by a discussion of fluids, gases, wind, ventilation, cold and other factors involved in flight, and of the effects of flight on the ear and on orientation. There is a discussion of air sickness and altitude sickness, of the effects of oxygen and atmospheric pressures, and then some highly technical discussions dealing with embolism and the effects of speed and acceleration. Some of the most interesting chapters for the general reader are the concluding discussions of the psychology of flight and of the new problems in sanitation raised by flight.

The book is well written and handsomely illustrated, and it has an excellent index.

Der Scharlach in Finnland bis einschliesslich 1900. Von Dr. Max Björkstén. Am. 16 November 1936 von Axel Wallgren und Ali Krogius vorgeleg. Acta Societatis scientiarum fennicæ, Nova series B. Tom I, N:o 3. Paper. Pp. 264. Helsingsfors: Akademische Buchhandlung; Berlin: R. Friedländer & Sohn, 1938.

This extensive statistical study of scarlet fever in Finland covers a period of 139 years, beginning with 1762 and ending with 1900. As the author states, the diagnosis of scarlet fever during all of the eighteenth and first part of the nineteenth century was uncertain and official statistics are scanty; nevertheless, contemporary reports of the more severe epidemics furnish reasonably reliable information. The first recorded epidemic of scarlet fever in Finland occurred in September 1755. It resulted in the death of many children from 6 months to 5 years of age on the third to the seventh day of illness. Though the disease was epidemic, it did not impress observers as contagious in the sense of being transmitted by direct contact. The year by year statistics as to incidence of scarlet fever and death rate due to this disease in Finland, which occupy 150 pages, are summarized and tabulated in subsequent chapters. The prevailing weather conditions compared with the incidence of scarlet fever showed no relationship other

than the well known seasonal variation resulting in a maximum number of scarlet fever cases in January, a decrease in the late spring and a slight rise in late summer, continuing into the sharp rise of fall. The chapter on treatment describes the symptomatic therapy which prevailed and how, since this appeared ineffective, the people lost confidence in the power of medicine to influence the course of scarlet fever and frequently did not send for a doctor when the disease appeared. Since the period covered by this report ends with the year 1900, scarlet fever antitoxin was not yet available. After citing opinions to the contrary, the author concludes that scarlet fever must be considered a contagious disease. The monograph will not interest clinicians but it constitutes a definite contribution to public health statistics.

The Medical Staff in the Hospital. By Thomas Ritchie Ponton, B.A. M.D. Cloth. Price, $2.50. Pp. 288. Chicago: Physicians' Record Company, 1939.

This book is written by a physician who by training and experience is thoroughly qualified to discuss the various phases and problems of hospital administration. It is a comprehensive and authoritative treatise which presents the full range of material that concerns the medical staff in its relation to the hospital service. The author has furnished information of a most practical nature and has succeeded in crystallizing in a single volume the subjects that are essential to the study of staff organization as a whole. There are nine chapters describing in a logical and systematic manner the obligations of the governing board and the medical staff, the relation of physicians to hospital service, the selection and appointment of staff members, the principles of staff organization, by-laws, rules and regulations, staff meetings, medical records, professional accounting and classification, and administrative relationship of the resident medical staff. There are many valuable illustrations, a list of standard forms relating to staff organization and medical records, and an ample index of ten pages. Addenda are included concerning the American Medical Association's standards for intern training, the Essentials in a Hospital Approved for Residencies in Specialties, the requirements for approval of internships in Canada, the minimum standards of the American College of Surgeons, by-laws, rules and regulations for various types of hospitals, a schedule of standing orders and sample regulations applicable to the intern staff. In this volume the author has described clearly the interrelationship of the medical and administrative personnel and the obligations of the staff in assuming control of medical policies and professional services. His emphasis on the qualifications and responsibilities of the medical staff is of particular significance, since these factors are of paramount importance in the care and welfare of patients. Staff physicians, superintendents, record librarians and others interested in hospital administration will find this book a valuable source of information and reference.

Sbornik trudov. Tom V: K pyatidesyatiletiyu Tomskogo Gosudarstvennogo Meditsinskogo Instituta imeni V. M. Molotova, 1888-1938. [Collection of Works Celebrating 50th Anniversary of Tomsk Medical Institute (Named after V. M. Molotov). Volume V.] Cloth. Price, 9 rubles. Pp. 274, with illustrations. Tomsk: Izdatelstvo "Krasnoe Znamya," 1939.

This volume is a festschrift contributed to by the members of the Tomsk Institute of Physical Therapy and Balneology on the occasion of the fiftieth anniversary of the Tomsk Medical Institute. The subjects treated are those concerned with the effect of diathermy, iontophoresis and other physical therapeutic procedures in various disease states. The contribution by Shpisman on diathermy treatment of chronic disease of the heart is worthy of comment because of its conservative attitude. Among the contraindications to this treatment the author lists valvular diseases of the heart with decompensation, coronary thrombosis, dilatation of the aorta accompanied by hypertension, myocarditis accompanied by serious vascular alterations, exophthalmic goiter, the tendency to pulmonary hemorrhages, and very high or markedly lowered blood pressure. Diathermy is indicated in chronic disease of the heart characterized by painful sensations and mild myocardial lesions of a dystrophic type. The beneficial effect of the treatment manifests itself in the relief of pain and in the improvement of the cardiac function. Thirty-seven and eight-tenths per cent of the author's patients were completely relieved of the pain. In 51.5 per cent considerable diminution of the pain was registered. Subjective improvement was noted in 89.5 per cent. Extrasystoles of functional character disappeared as a rule, whereas extrasystoles as a result of an organic cardiac lesion were not influenced. Tachycardias and bradycardias of cardiac origin not complicated by grave irreversible lesions become regulated as a rule.

Health in Relation to Occupation. By H. M. Vernon, M.A., M.D. Cloth. Price, $4.50. Pp. 355, with 50 illustrations. New York & London: Oxford University Press, 1939.

Heredity affects health through the inheritance of good physique and intelligence. Under the heading of social environment, nutrition is by far the greatest single influence on physical welfare, exceeding by a considerable margin parental care, housing, sanitation and other elements which depend fundamentally on wages. Occupation affects health in a great many direct and indirect ways. In any event, it is a particularly difficult assignment to dissociate the effects of these three factors one from the other. Nevertheless, Vernon feels it worth while to set up certain percentage relationships between these factors, tentatively at least, until further observation by him and others may suggest abandonment or further exploration of this method of evaluation. These, in substance, are a few of the author's reflections on a most interesting subject, which, at least in this country, receives far less consideration in medical publications than it deserves. This book refers mainly to British conditions, although the general recommendations and conclusions have a much wider application. In fact, it is mainly in England that good statistical data are available for compilation and review concerning the effects of work and economic status on health. The occupational mortality data, for example, as published in the Registrar General's Decennial Supplements have no close counterpart in other countries. Nowhere are there accumulations of data on sickness and occupation except where the work itself has been discovered as the direct etiologic agent. Vernon concludes that "The greatest single factor for the improvement of the nation's health is the provision of an adequate income for all members of society." To this expression the great majority of physicians in this country can voice substantial agreement.

The Health of the Chinese in an American City, San Francisco. J. C. Geiger, M.D., Emmett E. Sappington, M.D., Roslyn C. Miller and Hilda F. Welke, A.B., San Francisco Department of Public Health. Paper. Pp. 29. San Francisco, 1939.

This interesting and instructive report opens with a brief contrast of conditions in the Chinese section of San Francisco in 1870 and the changes that have been made in this section of the city since that time. During the ten year period ended in 1938 there has been a noticeable decrease in the birth rate among the Chinese. Among the tangible results of the efforts in the education of Chinese mothers is the increase in the number of those who have been hospitalized at the time of delivery. In 1929 only 20 per cent of births occurred in hospitals, whereas in 1938 there were 56 per cent, an increase of 180 per cent of birth in hospitals. As a contrast, 82 per cent of citywide births in 1929 were in hospitals and 92 per cent in 1938, an increase of 12 per cent. One of the major health problems in the Chinese area is tuberculosis, which is associated with crowded housing conditions and long working hours leading to fatigue. The pulmonary type accounted for 67 per cent of all cases of tuberculosis; 78 per cent of patients were under 25 years of age; of the families in which tuberculosis was found, 60.7 per cent of the heads of families had an income of less than $70. Over the ten year period 1929-1938 there has been a constant decline in the Chinese general death rates. Citywide death rates have never reached the approximated 18.1 Chinese rate per thousand of population in 1929 and they have never declined to the low Chinese rate of 9.83 for 1938. The average age at death for the city was 52.4 years and for the Chinese 41.7 years in 1929. In 1938 the citywide average age at death was 58.3 years and for the Chinese 50.8 years. These and other changes noted in the report are attributed largely to the development of public health measures among the Chinese; however, it appears that even greater advances might have been recorded were it not for evidence that the Chinese, especially the early age groups, have greater susceptibility and less resistance to disease. This report is an encouraging evidence of some of the accomplishments possible through public health education and properly sustained public health administrative measures.

Love at the Threshold: A Book on Dating, Romance and Marriage. By Frances Bruce Strain. Cloth. Price, $2.25. Pp. 349. New York & London: D. Appleton-Century Company, Incorporated, 1939.

The physician seeking a book which he can recommend for reading by boys and girls and young men and women can place confidence in this volume. It is comprehensive, practical, sensible and scientific. It is written in a sympathetic style which indicates the author's genuine interest in and wide acquaintance with personal problems of young persons, especially those having to do with relationships between the sexes on three principal levels with which the book deals, namely, dating, romance and marriage. The only objection which some physicians may have to the book would seem to be its somewhat excessive confidence in the rhythm theories as contraceptive methods, perhaps a bit too much optimism on the ease and safety of modern motherhood. The book deals with its three principal topics adequately and without overdoing the preaching attitude. It is the kind of book which a young woman whose opportunities for acquiring poise and social graces have not been too abundant may read with assurance and which the girl during courtship and approaching marriage may find a valuable guide. It is perhaps less suitable for boys than for girls, but even so the adolescent boy will find useful information in it. Parents who are being asked questions which they cannot answer, or parents whose answers are not acceptable to their own offspring, may find welcome corroboration and cooperation in the advice contained in this book.

Suchasna metodika zazhittevogo farbuvannya nerviv metilenovoyu sinkoyu i inshimi farbnikami. [By] O. V. Leontovich. [Present Day Methods of Vital Staining of Nerves with Methylene Blue and Other Stains.] Paper. Price, 3 krb. 50 kopecks. Pp. 88, with 4 illustrations. Kiev: Vidavnitstvo Akademiï Nauk URSR, 1939.

This is a monograph devoted to the discussion of the newer methods of supravital staining of nerve tissue. The silver methods of staining of Golgi and of Ramon y Cajal had a limited field according to the author. The Bielschowsky was an advance. It did not stain, however, all the neuroplasma but only the primary nerve fibers. The pericellular elements were poorly stained and the neuroplasma of the nerve fibers barely demonstrated. The greater part of the monograph is devoted to the discussion of the newer methods of fixation and of supravital stains with methylene blue developed in the recent years in the Union of Soviet Socialist Republics. The work of the School of Vorobiev is discussed in considerable detail. The method enables the demonstration of the nervous system in its finest divisions. The newer methods of fixation permit preparations to be examined with the oil immersion lens. Sections of the thickness of from 0.25 to 0.5 mm. enable one to study innervation as it is rather than in reconstruction pictures. A fairly exhaustive biography on the subject is appended. The book is written in the Ukrainian and, contrary to the usual custom, does not contain a summary in any other language.

Hospital for the Ruptured and Crippled: A Historial Sketch Written on the Occasion of the Seventy-Fifth Anniversary of the Hospital. By Fenwick Beekman, M.D. With a foreword by Philip D. Wilson, M.D., Surgeon-in-Chief. Cloth. Price, $3. Pp. 157, with 11 illustrations. New York, 1939.

As has often been stated, prior to 1863 philanthropists, public officials and the people as a whole did not show any real recognition of a social responsibility for those who were physically maimed. Throughout the United States not one single hospital specifically dedicated to the care of the crippled could be found. In that year, while the Civil War with all its horror was creating countless thousands of crippled individuals, the Hospital for Ruptured and Crippled was founded. This book consists of a fascinating history of the first seventy-five years of that institution. To some extent this record shows the influence which the Hospital for Ruptured and Crippled exerted throughout the United States on medical and surgical thought and the care of physically disabled individuals, from both the technical and the social point of view. Begun in the home of Dr. James Knight, with a small group of patients, this institution has provided for more than 800,000 individual men, women or children the benefits of care which could be rendered only by a skilled staff of doctors who were dedicating their lives to this special work. Many advances in orthopedic technic have had their origin within the walls of this institution. In every section of the country may be found orthopedic surgeons who received their training as assistants to the staff of surgeons of the Hospital for Ruptured and Crippled. The volume contains many personal references and constitutes a record of achievements of many professional and lay individuals who worked faithfully that this institution might survive and fulfil its appointed function.

The Tools of the Chemist: Their Ancestry and American Evolution. By Ernest Child. Cloth. Price, $3.50. Pp. 220, with 105 illustrations. New York: Reinhold Publishing Corporation, 1940.

This volume is a fascinating work which might well be duplicated in the field of medicine. It provides biographic data as well as the history of apparatus and materials used in the chemical profession. Here is the ancestry and development of balances, glassware, filter paper, rubberware and optical apparatus used by chemists. There are innumerable excellent illustrations in the forms of photographs, drawings and portraits.

Modern Marriage. Edited by Moses Jung. Cloth. Price, $3.75. Pp. 420, with 37 illustrations. New York: F. S. Crofts & Co., 1940.

For the last six years the State University of Iowa has offered a course on modern marriage in which members of the entire faculty have participated. The course has been coeducational and has included both married and unmarried students. The discussions in the course have been exceedingly frank. In this volume the aspect of mental hygiene is discussed by John M. Dorsey of the University of Michigan, the biologic aspects by Dr. Andrew H. Woods of the department of psychiatry, the physical aspects by Dr. E. D. Plass of the department of obstetrics. The volume discusses as well legal aspects, economics, religion, art and intelligence. There is some discussion of contraception and premarital examinations. The book should prove not only interesting but extremely valuable to any intelligent adult who contemplates marriage. It should also be especially suggestive to physicians and teachers who may be charged with the duty of advice for those who do not wish to avail themselves of a volume of this type.

Men Against Madness. By Lowell S. Selling, M.D., Ph.D. Cloth. Price, $3.50. Pp. 342, with 42 illustrations. New York: Greenberg, Publisher, 1940.

By a series of biographies and historical anecdotes Dr. Lowell Selling traces the development of our modern methods of treating diseases of the mind. It becomes quickly apparent that physicians recognized from the first the intimate relationship of mind and body, although there were innumerable tendencies toward separating the consideration of their disturbances. As long as human beings believe in magic, it was certain that mental conditions would be treated from the point of view of the magician. Then came Pinel, who struck the chains from the insane. Scientific progress was also inhibited to some extent by the charlatans, although these charlatans themselves did help to advance study of the mind. Prominent, of course, are Gall, who founded phrenology, and Mesmer, who developed animal magnetism. Coincidentally came the great discoveries of the scientists who dealt with the structure and function of tissues, psychologists and psychiatrists. The modern era culminates, of course, with the evolution from Charcot to Freud. From the time of Kraepelin and Freud psychiatry has advanced tremendously. The physician and the layman who wish to orient themselves in this field can do so pleasantly with this well written volume by Dr. Selling.

High Schools and Sex Education. By Benjamin C. Gruenberg, Special Consultant to U. S. Public Health Service. With the assistance of J. L. Kaukonen. United States Public Health Service, Federal Security Agency, Bulletin No. 75 revised. Paper. Price, 20 cents. Pp. 110. Washington, D. C.; Supt. of Doc., Government Printing Office, 1939.

This pamphlet is published by the United States Public Health Service to set forth a point of view with relation to how sex education had best be carried out. Acknowledging the necessity for primary sex teaching in the home and deploring the general lack of such teaching, the booklet postulates the theory that the school must do what the home fails to do. In the presence of such a Hobson's choice, the proposal set forth in the booklet should meet with general approval. The booklet is divided into three principal parts, exclusive of the foreword and introduction. Part one has to do with planning and organization in

the secondary schools, containing chapters on the province of the school, methods and supplementary devices, and teacher selection, preparation and development. Part two indicates how sex instruction can be integrated with various courses, including biology, general science, physiology and hygiene, physical education, home economics, social studies and English. There are four appendixes containing respectively a reading list for teachers and school officials, a reading list for students, information on pamphlets and visual aids, and a suggested outline of a course for teachers on sex education in secondary schools. The manual is a comprehensive and thoughtful presentation and should be useful for reference in any situation in which the problem of sex education in the schools is under consideration.

The Becoming of Oswald or Wake Up and Loaf. By Emmanuel Winters. Cloth. Price, $1.50. Pp. 144. New York: Milestone Press, 1939.

This little satire purports to give a picture of the American with a superiority complex or what the author believes is a typical American. Oswald begins by being as timorous as Mr. Webster's "Gentle Soul" but he soon discovers that it is possible by reading Elbert Hubbard's Scrapbook and similar works to become a success. Oswald becomes successively a New Yorker, an architect, a doctor—that is to say, one of those laymen who are ready to prescribe for every one's illnesses—a materialist, a financier, a coin collector, a prophet and a revolutionary. Finally he becomes a real success by winning a $50,000 prize in the Irish Sweepstakes.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Accident Insurance: Death from Typhoid Is Death Resulting from "Disease in Any Form."—The defendant company issued a policy of insurance providing stated benefits if the insured died "as a result, directly and independently of all other causes, of bodily injuries, effected solely through external, violent and accidental means, of which . . . there is a visible contusion or wound on the exterior of the body . . ." Under the policy no benefits were payable if death resulted directly or indirectly from "disease in any form." The insured contracted typhoid from drinking contaminated water and died. His beneficiary brought suit under the policy. A judgment of the trial court in favor of the insurance company was reversed by the Kansas City (Mo.) court of appeals and the company appealed to the Supreme Court of Missouri.

The death of the insured, contended the beneficiary, was clearly within the terms of the policy because the ingestion of the typhoid germs by the insured was accidental, the bacteria were external means producing violent injuries resulting in death, and the visible contusion or wound on the exterior of the insured's body required by the policy was present in cracked and "blackened" lips, which appeared after the inception of the disease and before death. The provision of the policy, it was further contended, excluding death from disease should be construed not to apply in this case because the disease followed or was incidental to accidental bodily injuries caused by the germs. But, said the Supreme Court, the terms of a contract of insurance must be taken in their plain, ordinary and popular sense. Under such a rule of construction the Supreme Court held that the beneficiary could not recover under the policy because of the provision denying liability if death resulted from "disease in any form." This provision is clear and unambiguous and cannot be construed to warrant a finding that typhoid is not a disease. The court was not impressed with the beneficiary's contention that the ingestion of the bacteria caused an injury which in turn resulted in the disease and that therefore death was due to injury and not to disease and so was not within the exclusion clause. Common understanding, said the court, forces the conclusion that typhoid, the disease, was the proximate cause of death. Any bodily injury suffered by the insured was an incident of the disease. To uphold the beneficiary's contention would be to decree that all death from disease would be covered by the policy because a normal person would not intentionally expose himself to bacteria which causes disease and so the contracting of disease would always be accidental. There would then be no difference between an accident and a health insurance policy. However, the ordinary man draws a clear distinction between bodily injury and disease. The court concluded, therefore, that because of the exclusion clause here discussed the policy did not cover death resulting from typhoid, which is a disease not brought about by accidental bodily injuries.

Accordingly, the judgment of the appellate court was reversed and, in effect, judgment was rendered in favor of the insurance company.—*State ex rel. Prudential Ins. Co. of America v. Shain (Mo.), 127 S. W. (2d) 675.*

Malpractice: Gas Gangrene Following Injury to Hand.—The plaintiff injured his left hand while cutting brush. He engaged the defendant physician to treat him, but after a few treatments he employed other physicians to attend him instead. The latter physicians extracted from his hand two or three splinters, incised the hand in several places and inserted gauze drains. Within two or three days after they commenced to treat the plaintiff they discovered that the wound had become infected. They diagnosed the condition as gas gangrene and thereupon amputated the patient's left hand and arm at a point above the elbow. Subsequently the patient sued the defendant physician for malpractice. From a judgment in favor of the plaintiff the physician appealed to the court of civil appeals of Texas, San Antonio.

The burden rested on the plaintiff, said the court of civil appeals, to prove that negligence on the part of the defendant in his treatment of the patient was the proximate cause of the infection which necessitated the amputation of his "hand." In the judgment of the court, the plaintiff had failed to do so. The evidence adduced showed that the defendant examined the plaintiff's hand under a fluoroscope to detect any possible fracture, probed the wound and extracted therefrom a splinter, washed the wound with an antiseptic and approximated the edges of the wound with "a clamp." It was not shown that the infection which necessitated the amputation was in any way caused by negligence on the part of the defendant. One of the medical witnesses for the plaintiff, in answer to a hypothetical question, did testify that the treatment rendered was negligent but on cross examination he admitted that he would have used the same treatment as the defendant had used. All the experts testified that the infection could have occurred regardless of the treatment administered to the wound. The fact that the wound became infected could not be said to be evidence of want of care on the part of the defendant in his treatment of the injury. Since the court was of the opinion that the cause of the infection in this case was known only to those trained in medical science, it concluded that the trial court had erred in overruling the defendant's motion for a directed verdict in his favor and in submitting the cause to the jury.

Accordingly, the judgment of the trial court in favor of the plaintiff was reversed and the cause remanded for a new trial. —*Kootsey v. Lewis (Texas), 126 S. W. (2d) 512.*

Society Proceedings

COMING MEETINGS

American Physiotherapy Association, New York, June 23-28. Mrs. Eloise T. Landis, 2065 Adelbert Rd., Cleveland, Secretary.
American Urological Association, Buffalo, N. Y., June 24-27. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.
Maine Medical Association, Rangeley Lakes, June 23-25. Dr. F. R. Carter, 22 Arsenal St., Portland, Secretary.
Medical Library Association, Portland, Ore., June 25-27. Miss Anna C. Holt, 25 Shattuck St., Boston, Secretary.
National Medical Association, Houston, Tex., Aug. 12-16. Dr. John T. Givens, 1108 Church St., Norfolk, Va., General Secretary.
Pacific Northwest Medical Association, Spokane, Wash., July 10-13. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
West Virginia State Medical Association, White Sulphur Springs, July 29-31. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1930 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

19:385-512 (April) 1940

*Cardiac Changes in Pregnancy Unrelated to Usual Etiologic Types of Heart Disease. W. A. Sodeman, New Orleans.—p. 385.
Relation of Longitudinal Tension of Artery to Preanacrotic (Breaker) Phenomenon. J. Erlanger, St. Louis.—p. 398.
Roentgenologic Demonstration of Left Ventricular Hypertrophy. G. Levene and R. M. Lowman, Boston.—p. 401.
Experimental Methods for Producing Chronic, Progressive, Coronary Arterial Occlusion. J. J. Thornton and F. R. Mautz, Cleveland.—p. 404.
Significance of Vascular Hyperreaction as Measured by Cold-Pressor Test. E. A. Hines Jr., Rochester, Minn.—p. 408.
Cardiomensurator, Instrument for Detection of Cardiac Enlargement by Direct Correlation of Transverse Diameter of Heart with Body Weight and Height. W. W. Fray, Rochester, N. Y.—p. 417.
Study of Cardiovascular Disease in Charleston, S. C., Based on Necropsy Statistics. T. M. Peery, Washington, D. C., and S. M. Langsam, New York.—p. 424.
Haemophilus Parainfluenzae Endocarditis: Report of Two Cases and Review of Literature of Influenzal Endocarditides. E. B. Craven Jr., Lexington, N. C.; Mary A. Poston and E. S. Orgain, Durham, N. C.—p. 434.
*Roentgenokymogram in Myocardial Infarction: I. Abnormalities in Left Ventricular Contraction. M. L. Sussman, S. Dack and A. M. Master, New York.—p. 453.
*Id.: II. Clinical and Electrocardiographic Correlation. S. Dack, M. L. Sussman and A. M. Master, New York.—p. 464.
Seasonal Incidence of Coronary Occlusion in a Mild Climate: Study Based on Autopsy Material. H. J. Hoxie, Los Angeles.—p. 475.

Cardiac Changes in Pregnancy Unrelated to Heart Disease.—Sodeman observed seventy-three apparently normal patients during pregnancy to ascertain what cardiac changes resulted from the gravid state. Palpitation or dyspnea or both developed in thirty-one and was sufficiently severe to constitute a complaint. Choking or "smothering" at night was complained of by two. Soft systolic murmurs were common and, at times, were markedly affected by posture. In thirty instances, soft, short, transient, systolic pulmonic murmurs were heard. Of the more constant systolic murmurs, eighteen were both apical and basal, six were apical alone and eight were basal alone. A diastolic murmur was heard at the aortic area in one case. Gallop rhythm occurred eight times, and a definite accentuation of the pulmonic second sound thirty-one times. Accentuation of the aortic second sound occurred twice and splitting of the mitral first sound five times. The heart was definitely beyond the midclavicular line in twelve cases, confirmed by x-ray examination in ten. Tachycardia was recorded graphically in forty-seven cases and ectopic beats in four. Edema of the ankles was present in twenty-eight. The blood pressure of every patient remained within the normal range. In seven of the seventy-three patients symptoms and signs sufficient to suggest heart disease developed in the last trimester. In five of these, palpitation and dyspnea on exertion were accompanied by accentuation of the pulmonic second sound, extension of the left border of cardiac dulness beyond the midclavicular line and systolic apical murmurs, and in two by basal systolic murmurs, edema of the ankles and coarse rales at the bases of both lungs. Numerous ventricular extrasystoles occurred in one instance and sensations of suffocation in the eighth month awakened another patient on several occasions, causing her to sit up. The symptoms of two patients were extreme. The dyspnea of one became so severe that the patient was unable to carry on her usual household duties. The other's symptoms were similar but were accompanied by marked apprehension, a coarse tremor of the hands, tachycardia and evidence of vasomotor instability. The arterial pressure was within the normal range in all patients. In each instance delivery was uneventful, and examination during the puerperium disclosed that practically all the signs and symptoms had disappeared. So-called gestatory heart disease must be differentiated from organic heart disease as patients with the former type require no special treatment. The inclusion of patients with gestatory heart "disease" in the organic group not only causes them unnecessary expense, inconvenience and worry but exposes them unnecessarily to added obstetric risks.

Roentgenokymogram in Myocardial Infarction.—Sussman and his colleagues describe the kymographic abnormalities in serial records of 200 typical cases of coronary artery occlusion followed by myocardial infarction and correlate them with the various stages of the disease. In 75 per cent of the cases the following characteristic abnormalities were found: (1) diminution or absence of pulsation in a localized segment of the left ventricular contour, (2) systolic expansion, either total or partial, over one or more segments of the lower left contour and (3) diastolic splintering shown by marked irregularities in diastole. Equivocal changes included generalized diminution in pulsation, slight localized diminution in pulsation, slight irregularities in diastole and partial expansion not definitely in early systole. The early changes of myocardial infarction were studied in thirty-two patients on whom roentgenokymograms were obtained during the first or second week following the onset of coronary occlusion. In most of these cases serial roentgenokymograms were obtained at weekly or biweekly intervals. In ten of the thirty-two cases systolic expansion appeared as early as the first or second week. This persisted during the following three to eight weeks. Moderate to marked diminution in pulsation was present during the early stages in twelve. In nine the initial roentgenokymogram was normal or showed equivocal changes. Although the pulsations in the early stages were often normal or only slightly abnormal, in the majority of cases they became progressively impaired during the subacute stage, when complete or partial systolic expansion may be noticed in the fourth to the fifth week. Serial roentgenokymograms in a few cases showed that the cardiac contractions remained normal for two or three months, at the end of which time definite abnormalities finally became evident. This suggests that both softening of the ventricular wall by acute myomalacia and replacement fibrosis, with thinning, may be associated with abnormal ventricular contraction. Definite myocardial infarction produces no kymographic changes in a minority of cases. The incidence and type of kymographic abnormalities were the same in cases of recent and of old myocardial infarction. The incidence of abnormalities at intervals of from one to four years after recovery was approximately the same as during the acute stage of coronary occlusion. Of twenty-two patients examined from four to twelve years after the attack, sixteen still showed evidence of previous infarction in the form of complete or partial systolic expansion. Abnormalities in pulsation during the acute stage of the attack persisted, became more definite in the chronic stage or became less marked. Of thirty-four cases systolic expansion was observed in twenty cases during the acute or subacute stage of the attack, but it persisted in only eleven of these. Three follow-up roentgenokymograms were completely normal after recovery, and in six the systolic expansion regressed to diminution of pulsation with slight irregularities. Healing of the myocardial infarct may be followed by complete or partial disappearance of the abnormalities in ventricular contraction; this probably occurs when healing is associated with little residual fibrosis, which is a common postmortem observation.

Roentgenokymographic, Clinical and Electrocardiographic Correlation.—Dack and his associates correlated the roentgenokymographic changes, electrocardiographic changes and clinical course in 200 cases of acute and old myocardial infarction secondary to coronary artery occlusion. The kymogram was usually normal when the attack was mild and the recovery good. Regression or complete disappearance of kymographic abnormalities was a good prognostic sign. The kymographic abnormalities were usually marked when the attack was severe and the recovery incomplete. The roentgenokymogram and the electrocardiogram supplement each other, as one may be normal and the other abnormal, or vice versa. The roentgenokymogram should prove to be of most diagnostic value during the acute stage, when the clinical course and electrocardiogram are not typical of coronary artery occlusion,

and following recovery, when the characteristic signs of previous infarction have disappeared. Posterior infarction produced abnormalities in the postero-anterior kymogram as often as did anterior infarction. At autopsy, systolic expansion in four cases could be correlated with a large area of infarction or thinning of the left ventricle. Diminution of pulsation occurred in one case in which there was a small posterior infarct, and in another in which there was diffuse myofibrosis.

American Journal of Cancer, New York

38:463-630 (April) 1940

*Hormone Etiology of Breast Cancer. W. Cramer.—p. 463.
*Ovarian Dysgerminoma. S. Sailer, Charleston, S. C.—p. 473.
Influence of Roentgen Radiation on Heterologous and Homologous Transplantation Immunity. J. Clemmesen, Leeds, England.—p. 483.
Endocrine Glands in Experimental Cancer Induced by Benzpyrene: Study of Role of Endocrine Glands in Pathogenesis of Tumors. L. T. Larionow, Leningrad, Soviet Union.—p. 492.
Susceptibility to Follicular Hormone and Disposition to Mammary Cancer in Female Mice. P. J. van Gulik and R. Korteweg, Amsterdam, Netherlands.—p. 506.
Host Constitution and Incidence of Chemically Induced Tumors. W. F. Dunning and M. R. Curtis, New York.—p. 516.
Action of Short Radio Waves on Tissues: III. Comparison of Thermal Sensitivities of Transplantable Tumors in Vivo and in Vitro. H. J. Johnson, Newcastle-on-Tyne, England.—p. 533.
Metabolism of Human Endometrium, with Special Reference to Adenomyosis and Hyperplasia of Endometrium. M. L. Dreyfuss, New York.—p. 551.
Production of Endometrial Moles with Steroid Hormones. H. Selye and S. Friedman, Montreal.—p. 558.
Latent Choriocarcinoma. A. F. Brown, W. Snodgrass and O. B. Pratt, Los Angeles.—p. 564.
Comparison of Fungistatic Properties of Enanthaldehyde and Enanthic Acid as Related to Their Possible Anticarcinogenic Effect. C. Hoffman, T. R. Schweitzer and G. Dalby, New York.—p. 569.

Hormone Etiology of Breast Cancer.—Cramer summarizes the results of his investigations on mice as follows: A high susceptibility to mammary cancer is associated in two strains of mice with a process of degeneration in the adrenal medulla. This susceptibility can be diminished by removing the supply of the adrenal cortical hormone or by applying an excess of an anterior pituitary substance. From this it is apparent that the susceptibility to mammary cancer is not a fixed and unalterable quality residing within the organism. It does not reside entirely—if at all—within the breast. It is conditioned partly by a disturbance of the endocrine balance. The estrogenic ovarian hormone acts as the carcinogenic agent and the synergic adrenocortical hormone without estrogen cannot exert its full activity. On the other side are the two hormones antagonizing the effects of the ovarian estrogen; the thyrotropic hormone of the anterior pituitary and a hormone from the adrenal medulla. The gap between a fully developed mamma and a cancerous mamma indicates that the process of carcinogenesis is not simply a continuation of development. The two are discontinuous. A new event—as yet unknown—takes place. The development of cancer in the mamma can be brought about by disturbing the endocrine balance in a variety of ways. In one the carcinogenic agent—the ovarian estrogenic hormone—is increased. This is the method used experimentally. When this is done the organism tries to restore the endocrine balance by a degenerative process in the adrenal cortex which tends to diminish the synergic hormone of the cortex and by an increased functional activity of the anterior part of the pituitary which secretes the antagonistic hormone. If the carcinogenic agent—the estrogen—is not increased, cancer may develop in the mamma as a result of a sensitization of the organism to the action of the ovarian hormone by a decrease in its antagonists. This is brought about in the two inbred strains of mice by a spontaneous degenerative process in the adrenal medulla or a pathologic condition in the anterior part of the pituitary may bring about dysfunction of the acidophil cells and thus weaken an antagonistic hormone. The existence of such pathologic conditions of the pituitary in association with mammary cancer has been recorded in the human being. Conversely, a resistance to the development of cancer in the mamma can also be brought about in a variety of ways. The carcinogenic agent may be diminished by ovariectomy; the effect of this procedure in delaying or preventing mammary cancer has been demonstrated. The same effect can be produced by diminishing the susceptibility by removal of the synergistic adrenal hormone or by furnishing an excess of antagonistic anterior pituitary hormone. It is not known what factors switch over the carcinogenic action of estrogens from the mamma to other organs. The conception of an endocrine imbalance as an etiologic factor in cancer of the mamma, and probably also of the uterus, should serve as a useful guide for clinical investigations. There is now a possibility of treating precancerous conditions of these two organs by appropriate hormones. The uterine cervix being accessible seems to offer itself as a most likely object for such an investigation. It would be desirable to search for clinical features resulting from slight endocrinologic abnormalities which characterize women with an inherited susceptibility to mammary and to uterine cancer. If such susceptibility could be recognized clinically before the disease manifests itself, the endocrinologic abnormalities on which such susceptibility is based could be corrected, and these two numerically important types of cancer might be prevented.

Ovarian Dysgerminoma.—Sailer reports five cases of ovarian dysgerminoma in women aged from 10 to 21 years. Four of the tumors occurred in the right ovary and one in the left. This group represents an incidence of 6.1 per cent among a series of eighty primary malignant ovarian tumors. The predilection of the tumor for the right ovary and the age incidence appear characteristic of the dysgerminomas. The microscopic appearance, including the number of mitoses, appears to be an unreliable indicator of growth potentiality. All tumors were extremely cellular and showed a striking resemblance to testicular seminomas. One tumor, in a Negro girl of 10, recurred a year following removal, with extensive pelvic, peritoneal and probable lung metastases. Death occurred one year and eight months after removal of the primary growth. Three other patients are living and well without evidence of tumor, three, four and six years respectively after operation. None of those still living received roentgen therapy either before or after operation. One patient bore a child two years prior to removal of the tumor and had two normal full term pregnancies two and four years respectively following operation. The physiologic significance of the nests of granulosa cells among the dysgerminoma cells awaits further biochemical study.

American J. Obstetrics and Gynecology, St. Louis

39:549-732 (April) 1940. **Partial Index**

Limitation of Human Reproduction: Therapeutic Abortion. H. C. Hesseltine, F. L. Adair and M. W. Boynton, Chicago.—p. 549.
Study of Possible Significance of Vaginal Smear as Additional Factor in Diagnosis of Incomplete Abortion. P. F. Fletcher, St. Louis.—p. 562.
*Management and Treatment of Habitual Abortion, with Especial Emphasis of Use of Progesterone. R. E. Campbell and E. L. Sevringhaus, Madison, Wis.—p. 573.
*Spontaneous Pneumothorax of the Newborn Infant. E. J. DeCosta, Chicago.—p. 578.
Transverse Abdominal Incisions in Pelvic Surgery: Report of 700 Cases. G. W. Hunter, Fargo, N. D.—p. 593.
Scarlet Fever in Obstetrics: Report of Epidemic. A. W. Diddle, R. E. Trussell and E. D. Plass, Iowa City.—p. 608.
Treatment of Bacteremias with Sulfanilamide. J. R. Reinberger, Memphis, Tenn.—p. 618.
Further Studies on Androgen Therapy of Gynecologic Disorders. J. P. Greenhill and S. C. Freed, Chicago.—p. 636.
Induction of Labor with Small Doses of Powdered Ergot: Preliminary Report. C. J. Ehrenberg, O. F. Robbins and J. A. Haugen, Minneapolis.—p. 653.
Premature Infant Mortality: Statistical Study of Factors Influencing Mortality in 453 Infants Weighing Less Than 2,500 Gm. R. M. Grier and H. O. Lussky, Evanston, Ill.—p. 669.
Experiences with Placental Blood Bank. W. M. Heyl, Philadelphia.—p. 679.
Intermenstrual Pain: Surgical Condition. E. F. McLaughlin, Philadelphia.—p. 684.
Transperitoneal Approach in Management of Inaccessible Vesicovaginal Fistulas. W. C. Danforth, Evanston, Ill.—p. 690.
Focal Infections in Pregnancy. T. D. Paul and C. E. Galloway, Evanston, Ill.—p. 694.
Six Year Cure of Cancer of Vulva in 22 Year Old Patient. N. V. Ludwick, Philadelphia.—p. 716.

Management and Treatment of Habitual Abortion.—Campbell and Sevringhaus used progesterone and corpus luteum extracts in the treatment of thirteen instances of habitual abortion. Each patient, with one exception, had aborted twice or more and did not have a living child. The exception was that of a woman who had a living child but aborted twice since its

birth. Following treatment eleven women went to term and had spontaneous deliveries. One patient aborted at the fourth month and the other at the sixth month of pregnancy. Each patient was carefully checked by physical examination and laboratory study to exclude every possible causative factor as related to habitual abortion. The eleven babies were not excessive in size and presented no fetal abnormalities. The progesterone dosage used varied considerably in the several cases and was quite high in the years before commercial preparations were available. The authors feel that from 1 to 2 rabbit units weekly is a safe dose for therapeutic effects. Others have used comparatively small doses. However the dosage necessary to prevent abortion is still empirical.

Spontaneous Pneumothorax in Newborn Infants.—DeCosta encountered spontaneous pneumothorax in two newborn infants. He suggests that it is a clinical entity which probably occurs frequently and is overlooked. No papers on the subject are to be found in obstetric literature, although references in the pediatric and roentgenologic literature do appear. A review of the literature reveals sixty-seven cases. Only forty-six of these have been directly associated with birth. In one of the author's cases subcutaneous emphysema and pneumoperitoneum were present. There appear to be two clinical types of pneumothorax in the newborn: one arises suddenly, demanding prompt treatment, and the other is more gradual and less severe with good prognosis irrespective of treatment. Resistance to the flow of air through the tracheal catheter during insufflation is suggestive of pneumothorax. The danger of producing pneumothorax by improper insufflation is stressed. Obstetricians should be mindful of the possible occurrence of pneumothorax, especially when artificial respiration has been employed.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

43:469-628 (April) 1940

*Bronchiogenic Carcinoma. L. F. Craver, New York.—p. 469.
Metastatic Neoplasms: Clinical and Roentgenologic Study of Involvement of Skeleton and Lungs. J. W. Turner, Springfield, Mass., and H. L. Jaffe, Chicago.—p. 479.
Tomographic Study of Cancer of Larynx. F. Leborgne, Montevideo, Uruguay.—p. 493.
*Value of Nitrites in Cardiospasm (Achalasia of Esophagus): Preliminary Report. M. Ritvo and E. J. McDonald, Boston.—p. 500.
Charcot's Arthropathy of Both Ankles: Case Report. S. A. Leader, North Chicago, Ill.—p. 509.
Traumatic Pneumocranium: Report of Two Cases. R. P. Barden, Pittsburgh.—p. 514.
Gastrointestinal Response of Average, Healthy Children to Test Meals of Barium in Milk, Cream, Meat and Carbohydrate Mediums. L. Reynolds, Icie G. Macy, Helen Hunscher and Mary Bates Olson, Detroit.—p. 517.
Effect of Injection of Distilled Water on Growth of Irradiated Mouse Sarcoma 180. K. Sugiura, New York.—p. 533.
Effect of Irradiations on Normal and Metastatic Lymph Nodes. F. J. Taussig, St. Louis.—p. 539.
Radium Treatment of Carcinoma of Cervical Stump. R. E. Fricke and H. H. Bowing, Rochester, Minn.—p. 544.
Irradiation of Carcinoma of Cervix Uteri in Pregnancy. A. Strauss, Cleveland.—p. 552.
*Further Report on Radium Treatment of Carcinoma of Cervix Uteri: 135 Additional Cases with Five Year Follow-Up. H. C. Pitts and G. W. Waterman, Providence, R. I.—p. 567.
Treatment of Polycythemia Vera by Roentgen Irradiation of Entire Body. J. W. Pierson, Baltimore, and C. D. Smith, Richmond, Va.—p. 577.
Osteomyelitis of Occipital Bone Complicating Roentgen Treatment of Nasopharyngeal Lymphosarcoma. H. Potozky and J. R. Freid, New York.—p. 584.
Exanthem Complicating Neoplastic Disease: Its Identical Occurrence in Four Cases of Carcinoma. L. Loewe and M. R. Camiel, Brooklyn.—p. 587.

Bronchiogenic Carcinoma.—Craver emphasizes the value of aspiration biopsy in the diagnosis of primary cancer of the lung and the value of roentgen radiation based on an analysis of 175 cases seen at the Memorial Hospital from 1918 to 1939 in which there was microscopic proof of the diagnosis. The diagnosis was proved at necropsy in thirty-four instances, from tissue removed at thoracotomy in eight, from expectorated macroscopic pieces of tissue in two, from tissue removed by bronchoscopy in fifty-nine and from aspiration biopsy in sixty. When a diagnosis of carcinoma is made after a carefully performed and interpreted aspiration biopsy and a clinical survey yields no sign of primary carcinoma elsewhere one is justified in assuming that the case is one of primary lung carcinoma. Bronchoscopy and particularly aspiration biopsy as proof of diagnosis are brief, less hazardous and cause much less delay in subsequent procedures than thoracotomy. Removal of a biopsy specimen bronchoscopically is preferred to aspiration biopsy in all cases in which a bronchoscopic examination is feasible. Such tissue is more likely to show cellular arrangement and to permit a diagnosis of type, grade and radiosensitivity of the tumor more readily than the aspiration biopsy. However, the careful sectioning of the small clot or of gross tissue fragments obtained by aspiration biopsy may yield excellent sections. It was not possible to fit all cases into the three commonly accepted categories: epidermoid carcinoma, adenocarcinoma and anaplastic carcinoma. Two other groups were necessary: (1) bronchiogenic carcinoma, in which the growth is undoubtedly of bronchial origin but impossible of being classified as epidermoid carcinoma or adenocarcinoma, and (2) "carcinoma"—often the best diagnosis that can be made from the bits of tissue obtained by bronchoscopy or aspiration biopsy. The squamous and epidermoid group accounts for nearly half of the cases, bronchiogenic, adenocarcinoma and anaplastic growths each for about one tenth and the unclassified "carcinoma" for about one fifth of the cases. Follow-up of the 175 patients shows twenty living, 140 dead and fifteen untraced. Seventeen of the patients were untreated, two were operated on elsewhere, fourteen were treated with radon or radium packs and 142 received roentgen therapy. The duration of life after admission of the untreated patients averaged 2.4 months. The results of radium treatment were generally not favorable and the results of roentgen therapy show that, as the dose is increased in the initial cycle, the duration of life increases. Patients receiving from 2,000 to 3,000 roentgens in the tumor survived an average of 8.2 months, as compared with an average survival of only 4.3 months of those receiving less than 1,000 roentgens. There is a marked trend toward improved palliation as the tumor dose increases. The various microscopic types of carcinoma revealed no significant difference in the survival figures, but palliation seemed to favor the epidermoid group. One patient operated on ten months ago has gained 60 pounds (27.3 Kg.) and seems free of disease. For the remaining seventeen living patients treated by roentgen rays, the five year survival rates are discouragingly low. The five year survival rate is 3.8 per cent, the four, three and two year rates are respectively 4.4, 4.8 and 6.9 per cent. Roentgen treatment appears to be largely a matter of palliative effect and possible prolongation of life. One of the roentgen treated patients lived for 13.2 years.

Nitrites for Cardiospasm.—Ritvo and McDonald were able to relieve the esophageal obstruction of cardiospasm by administration of amyl nitrite or of glyceryl trinitrate. The effects of amyl nitrite were prompt in nearly every case. Glyceryl trinitrate was more variable and less effective yet proved more satisfactory for routine use because of the absence of side reactions accompanying the administration of amyl nitrite. Of the fourteen cases in which it was used partial or complete abolition of the stenosis resulted in eleven. Doses of $\frac{1}{100}$ grain (0.0006 Gm.), increased or repeated, were used when necessary without serious ill effects. The nitrites proved of no permanent curative value after repeated administration; however, the drugs have a definite though limited application in the treatment of cardiospasm. Patients with severe, chronic achalasia of the esophagus may lose much weight and become severely dehydrated and apprehensive. Vomiting and regurgitation with choking and severe coughing may cause pulmonary complications. In acute attacks the patient may actually struggle for breath and become cyanotic in attempting to dislodge a bolus of food by violent straining. Temporary relaxation of the stenosis may prove a life-saving procedure in cases of this type. The relief of the obstruction with the drugs, especially with glyceryl trinitrate, gives the patient relief from his distressing symptoms, it permits accurate roentgen visualization of the esophagus and the remainder of the gastrointestinal tract, the passage of dilators is facilitated and the danger of traumatism or perforation during instrumentation is lessened.

Radium for Carcinoma of Cervix Uteri.—Pitts and Waterman report the five year results on 135 patients with carcinoma of the cervix uteri treated with long platinum filtered radium needles of low intensity. The patients made up a consecutive series and all were treated in 1931, 1932 and

1933. A comparison of results obtained at the different clinical stages shows very little difference from the results obtained on the previously reported 173 patients treated between 1926 and 1930 by the interstitial method, in spite of the fact that more roentgen therapy was used on the last 135 patients. The five year survival rate in stage 3 cases for the first series was eighteen out of sixty-two, or 29 per cent; that for the 1931-1933 series was sixteen out of forty-eight cases, or 33.3 per cent. The five year survival rates for stage 2 cases were respectively 53.8 and 55 per cent and those for stage 1 cases 90 and 60 per cent for the 1926-1930 and the 1931-1933 series. The authors believe that the ability to deliver approximately 6,000 milligram hours of gamma radiation into the parametrial and paracervical tissues, in addition to the usual 3,000 milligram hours in the cervical canal, without tissue breakdown or other serious complication is the determining factor in producing good results in stage 3 cases.

American Journal of Surgery, New York

48:1-326 (April) 1940. **Partial Index**

Preconceptional Care. F. L. Adair, Chicago.—p. 7.
Relation of Venereal Disease to Obstetrics. H. C. Hesseltine, Chicago.—p. 14.
Relation of Tuberculosis to Obstetrics. H. B. Matthews, Brooklyn.—p. 23.
Cardiac Disease in Obstetrics. E. J. Stieglitz, Garrett Park, Md.—p. 36.
Hemorrhages of Late Pregnancy and Labor: Placenta Praevia and Ablatio Placentae. R. W. Holmes, University, Va.—p. 61.
Prevention and Treatment of Eclampsia. W. J. Dieckmann, Chicago.—p. 101.
Factors Influencing Safety of Pain Relief in Labor. R. M. Waters and J. W. Harris, Madison, Wis.—p. 129.
Respiratory Complications in Care of the Newborn. F. F. Snyder, Chicago.—p. 169.
Gynecic Physiology and the Gynecologist. S. R. M. Reynolds, Brooklyn.—p. 175
Endocrinopathic Amenorrhea: Causes and Treatment. E. L. Sevringhaus and R. E. Campbell, Madison, Wis.—p. 197.
Diagnosis and Treatment of Functional Uterine Bleeding. E. Novak, Baltimore.—p. 205.
Treatment of Primary Amenorrhea. B. M. Ansfach and J. Hoffman, Philadelphia.—p. 209.
*Treatment of Trichomonas Vaginalis. K. J. Karnaky, Houston, Texas.—p. 216.
Present Status of Radium Treatment of Carcinoma of Uterine Cervix. F. W. Lynch, San Francisco.—p. 249.
Lymphogranuloma Venereum in the Female. L. A. Gray and M. L. Barnes, Louisville, Ky.—p. 277.
Causes of Postmenopausal Bleeding. R. W. Te Linde, Baltimore.—p. 289.
Office Treatment of Pathologic Cervix. Sophia J. Kleegman, New York.—p. 294.

Treatment of Trichomonas Vaginalis.—Karnaky recommends the following treatment after a microscopic diagnosis of trichomonas has been made, or when a patient complains of a foul malodorous discharge that causes itching or burning of the external genitalia and in all vaginal infections: The vulva, vagina and perineum are gently washed with vinegar water (5 tablespoons in 2 liters of water) and dried. From 1 to 2 drachms (4 to 7.8 Gm.) of a hydroxyquinoline derivative (floraquin powder) is blown into the vagina or from 4 to 8 tablets of the preparation are inserted, encircling the cervix, with a small plug of cotton inserted at the introitus. The patient is instructed to insert 1 tablet every morning and evening for twelve days. Instructions are given that a douche should not be taken during this period. After twelve days vinegar water douches (5 tablespoons of vinegar to 2 liters of water) are to be taken twice daily between and during the next three menstrual periods and up to the fourth menstrual period. At the end of the fourth menstrual period a fresh vaginal smear is made for trichomonas vaginalis and if found negative the patient is pronounced cured. If the smear is positive the treatment is resumed. Following each menstrual period for from two to five days 1 floraquin tablet is inserted morning and evening with vinegar douches as needed. Two tablets are inserted at the slightest itching or discharge and 1 tablet morning and evening for the next six days. The patient returns twice a week for two weeks for observation. For trichomonas vaginalis, pruritus vulvae or vaginitis with a great deal of tenderness from 1 to 2 drachms of the powder is blown into the vagina every day until the soreness is gone. An acid jelly can be inserted twice a day as a home treatment. After the acute stage has subsided 1 tablet is inserted twice a day as home treatment. In 400 cases of trichomonas vaginalis in private practice and in more than 4,000 charity cases at the Jefferson Davis Hospital, 94 per cent of the patients were cured by this method.

Archives of Internal Medicine, Chicago

65:873-1084 (May) 1940

Pancreatic Lithiasis Associated with Pancreatic Insufficiency and Diabetes Mellitus: Report of Two Cases. S. S. Rockwern, Cincinnati, and D. Snively, Rock Island, Ill.—p. 873.
Level of Iodine in Blood. H. J. Perkin and F. H. Lahey, Boston.—p. 882.
Use of Alpha Lobeline for Measurement of Velocity of Blood Flow. K. Berliner, New York.—p. 896.
Reticulo-Endothelial Cytomycosis (Histoplasmosis of Darling). A. A. Humphrey, Battle Creek, Mich.—p. 902.
*Acute Miliary Infarction of Heart. J. R. Lisa and Elsie McPeak, New York.—p. 919.
*Sulfanilamide in Treatment of Infections of Urinary Tract Due to Bacillus Coli. L. A. Rantz and C. S. Keefer, Boston.—p. 933.
Bacterial Endocarditis Superimposed on Syphilitic Aortic Valvulitis. A. L. Braunstein, Baltimore, and S. R. Townsend, Montreal.—p. 957.
Further Experience with Roentgen Diagnosis of Idiopathic Steatorrhea: Report of Cases, Including Postmortem Observations in One Case. J. L. Kantor, New York.—p. 988.
*Generalized Sarcoidosis of Boeck: Clinical Review of Eleven Cases, with Studies of Blood and Etiologic Factors. G. T. Harrell, Durham, N. C.—p. 1003.
Criteria for Classification and Diagnosis of Peripheral Vascular Diseases. G. Saland, C. Klein, H. Zurrow, A. Gootnick and A. Katz, New York.—p. 1035.
Diseases of Heart: Review of Significant Contributions Made During 1939. A. Graybiel, with editorial assistance of P. D. White, Boston.—p. 1053.

Acute Miliary Infarction of Heart.—Lisa and McPeak direct attention to an acute lesion of the myocardium called miliary infarction, which was found in ninety-nine cases and was usually associated with the clinical syndrome of sudden left ventricular failure. The material reviewed consisted of 2,857 cases in which necropsy was performed; it was divided into two main groups: (1) cases in which coronary arteriosclerosis was present and (2) cases in which this condition was not present. The first group was subdivided into a cardiac sclerotic group and a noncardiac sclerotic group on the basis of clinical symptomatology. The acute miliary infarction was most frequent in the cardiac sclerotic group, much less so in the noncardiac sclerotic group and least frequent in the nonsclerotic group. In the cardiac sclerotic group, its incidence was equal to that of acute coronary thrombosis. The greatly hypertrophied heart with marked sclerosis of the coronary arteries seemed most susceptible to the occurrence of the lesion. In seventeen of the ninety-nine cases, thrombi or emboli of the myocardial branches of the coronary arteries were found. The thrombosis was bacterial in one instance and malignant in another. In one case thrombosis of a main coronary artery was caused by a bacterial embolus arising from acute lobar pneumonia. An infectious nature of the myocardial lesion itself was never demonstrated. Infections in other organs, most frequently the lungs, were present in the majority of cases. The authors think that the lesion in the majority of cases is toxic and in a small percentage is due to embolism or thrombosis of the muscular branches of the coronary arteries, usually, even in this group, associated with infection.

Sulfanilamide in Urinary Infections Due to Bacillus Coli.—Rantz and Keefer present a study of treatment with sulfanilamide in seventeen cases of infection of the urinary tract due to Bacillus coli. Clinical improvement and sterilization of the urine were accomplished in most instances; the best results were obtained in cases in which there was no previous history of urinary infection and in those in which the infection was associated with pregnancy. If evidence of chronic infection of the urinary passages was present, the urine was more difficult to sterilize, and relapse frequently occurred. The urine usually could be sterilized by the oral administration of from 2 to 5 Gm. of sulfanilamide in twenty-four hours; this dose resulted in concentrations of from 23 to 139 mg. of the drug per hundred cubic centimeters of urine. No definite correlation was demonstrable between the dose of sulfanilamide, its concentration in the urine and the permanence of cure. The usual toxic symptoms associated with the administration of sulfanilamide were observed. Anemia appeared when the drug was exhibited in the presence of fever but usually did not recur when it was admin-

istered in the absence of fever. Seven strains of Bacillus coli isolated from the urines were studied in vitro. Sulfanilamide had bacteriostatic and, in certain instances, bactericidal effects; there were great differences in sensitivity to the drug between the various strains. Optimal bacteriostasis was obtained with concentrations of more than 80 mg. of sulfanilamide per hundred cubic centimeters of urine. To increase its concentration above 160 mg. did not significantly increase the drug's effectiveness. The p_H of the urine did not affect the activity of the drug in vitro. No correlation was demonstrated between the activity of sulfanilamide in vitro and that in vivo. Mandelic acid in vitro was markedly bacteriostatic for all strains, but in vivo it was not as effective as sulfanilamide.

Generalized Sarcoidosis of Boeck.—Harrell observed eleven patients with generalized sarcoidosis over a period of four years. Two have been clinically well for two years. Negroes predominated in this group. Changes were found in the content of calcium, protein and phosphatase of the blood. The phosphorus and nonprotein nitrogen were not altered. The cholesterol content was usually low or normal in cases in which the condition was active. Bilirubin tolerance tests showed retention. Calcium tolerance tests gave varied results. Substances resembling Bence Jones protein were occasionally present in the urine. Etiologic studies, with emphasis on fungi and acid-fast bacilli, using animal inoculation, cultures and serologic and cutaneous tests, gave negative results. The cutaneous test suggested by Williams and Nickerson did not give positive results. It is possible that some unrecovered member of the general group of bacteria related to the actinomyces, the leprosy bacillus or the tubercle bacillus is the etiologic agent, but as yet the etiologic question remains unsolved. It is suggested that the reaction may be an exaggerated nonspecific response to a lipid fraction of various organisms. Hematologic studies confirmed low or normal white blood cell counts, neutropenia (without a shift to the left in the Schilling hemogram), eosinophilia, monocytosis and increased sedimentation rate. Occasional nonspecific changes were observed in the electrocardiogram. The pathologic picture varied from a complete absence of eosinophils, the presence of moderate numbers of giant cells in acute lesions and the occasional presence of necrosis and amyloid. The treatment was empiric. The patients were advised to take a high calory, high vitamin diet, with cod liver oil and tomato or orange juice, to rest and to remain in the sunshine as much as possible. Ultraviolet irradiation produced no permanent improvement. Hyperpyrexia and sodium gold thiosulfate produced no noticeable benefit. Intravenous injection of neoarsphenamine was credited by a patient with causing improvement. Other patients had received this drug before they were seen or have since received it in treatment of syphilis, with no benefit. Desensitization to Williams and Nickerson's antigen might be tried on patients who react positively on cutaneous test to it. The maintenance of the blood of the patients near saturation with vitamin C caused no immediate improvement.

Archives of Neurology and Psychiatry, Chicago

43:859-1056 (May) 1940

Personality Changes Accompanying Cerebral Lesions: I. Rorschach Studies of Patients with Cerebral Tumors. M. R. Harrower-Erickson, Montreal.—p. 859.
Vascular Bed of Retina in Mental Disease. J. M. Cotton, N. D. C. Lewis and A. W. Egenhofer, New York.—p. 891.
Primary Intracranial Sarcomas. Y. K. Hsü, Chicago.—p. 901.
Effects of Intravenous Injection of Insulin in Treatment of Mental Disease: Preliminary Report of Clinical Observations. P. Polatin, H. Spotnitz and B. Wiesel, New York.—p. 925.
Serum Protein, Nonprotein Nitrogen and Lipoids in Schizophrenic and Manic-Depressive Psychoses. E. F. Gildea, Evelyn B. Man and R. W. Biach, New Haven, Conn.—p. 932.
Histologic Changes Following Metrazol Convulsions, with Note on Fuchsinophilic Reaction as Index of Early Neurocytologic Change. H. Cleckley, L. Bowles and F. A. Mettler, Augusta, Ga.—p. 948.
Temporary Arrest of Circulation to Central Nervous System: II. Pathologic Effects. L. M. Weinberger, Mary H. Gibbon and J. H. Gibbon Jr., Philadelphia.—p. 961.
Certain Aspects of Defects of Recent Memory Occurring in Psychoses of Senium. D. E. Cameron, Albany, N. Y.—p. 987.
Status Epilepticus as Complication of Metrazol Convulsive Therapy. N. G. Becker and S. I. Stein, Chicago.—p. 993.
External Geniculate Bodies: Degeneration Studies Following Occipital Lobectomy. W. J. German and B. S. Brody, New Haven, Conn.—p. 997.
Cessation of Epileptic Seizures and Electro-Encephalogram. R. Osgood, Boston, and L. J. Robinson, Palmer, Mass.—p. 1007.

Archives of Physical Therapy, Chicago

21:193-256 (April) 1940

Observations on Short Wave Heat. A. Bachem, Chicago.—p. 197.
*Treatment of Gonorrhea by Artificial Fever Alone and in Combination with Sulfanilamide. E. Belt and A. W. Folkenberg, Los Angeles.—p. 203.
Universal Instrument for Corrective Exercises. E. H. Bettmann, White Plains, N. Y.—p. 211.
Laboratory Method for Production of Fever. R. L. Bennett and E. C. Elkins, Rochester, Minn.—p. 216.
Water Excretion During General Hyperthermy by Physical Means. A. Bessemans, H. de Waele and A. Van Meirhaeghe, Ghent, Belgium.—p. 219.
Dangers of Ultraviolet Radiations. A. C. Cipollaro, New York.—p. 223.
Synergistic Effect of Drugs and Light on Streptococci. L. Pincussen and A. J. Nedzel, Chicago.—p. 231.
Removal of Skin Growths and Blemishes by Electric Needle. C. B. Lamp, Monongahela, Pa.—p. 235.

Artificial Fever and Sulfanilamide in Gonorrhea.—Belt and Folkenberg treated 134 gonorrhea patients with artificial fever, sixty-eight with fever and sulfanilamide and five with temperatures equal to the thermal death time of the gonococci. Twenty-nine of the 134 patients did not complete the single ten hour session. Five were given fever longer than ten hours. One hundred patients received a single hyperpyrexia treatment of ten hours at a rectal temperature of 106.7 F. Eighty-seven of these were found on a follow-up to be consistently free of gonococci. The 134 cases receiving only fever therapy represented every complication of gonococcic infection: prostatitis, cowperitis, epididymitis, seminal vesiculitis, periurethral abscess with fistulas, arthritis, salpingitis, bartholinitis, proctitis, peritonitis, ophthalmia, septicemia and endocarditis. All complications except endocarditis responded well to treatment. Sulfanilamide and its related compounds, combined with mild local treatment, were effective in 80 per cent. The authors resorted to fever therapy in sulfanilamide-resistant cases. Sixty-eight patients were given 20 grains (1.3 Gm.) of sulfanilamide four times daily for two days preceding fever therapy. On the morning of the fever treatment the patient takes 20 grains of sulfanilamide one hour before reporting. A fever session of five hours is given every other day until three treatments have been given. Sulfanilamide, 20 grains, is administered four times daily on alternate days. This combination therapy cures 86 per cent of the 20 per cent not cured by sulfanilamide alone. A combination of the two figures demonstrates success in 97 per cent of the cases. For the few cases (five in number) not cured by the combined therapy; fever equal to the in vitro thermal death time of the patient's own strain of gonococcus is suggested. This method will result in an incidence of cure approaching 100 per cent.

Arkansas Medical Society Journal, Fort Smith

36:267-288 (May) 1940

The Gann Resuscitator: Preliminary Report. D. Gann Jr., Little Rock.—p. 267.
Simple Office or Bedside Test to Determine the Hydrogen Ion, p_H, or Degree of Acidity or Alkalinity. J. H. McCurry, Cash.—p. 272.
Femoro-Iliac Thrombophlebitis of Lower Extremity: Treated by Blocking Lumbar Sympathetics with Novocain. R. E. Crigler, Fort Smith.—p. 274.

Bulletin New York Academy of Medicine, New York

16:195-262 (April) 1940

Chemotherapy with Sulfonamide Derivatives: General Principles. F. G. Blake, New Haven, Conn.—p. 197.
Chemotherapy of Pneumonia. N. Plummer, New York.—p. 208.
Consideration of Some Toxic Effects of Sulfonamide Compounds, Particularly Sulfapyridine. W. S. Tillett, New York.—p. 217.
Hyperpituitarism and Hypopituitarism. L. M. Davidoff, Brooklyn.—p. 227.
Hypertension: The Problem, the Study, the Future. S. W. Mulholland, Philadelphia.—p. 244.

16:263-344 (May) 1940

Medical Management of Hyperthyroidism. H. T. Hyman, New York.—p. 265.
Hyperparathyroidism. H. L. Jaffe, New York.—p. 291.
General Crymotherapy. J. C. A. Gerster, C. E. Kossmann, C. Reich, A. Bernhard, J. Geiger, T. K. Davis, Madge C. L. McGuinness, H. R. Kenyon, J. F. Dixon, F. Huber, R. M. Paltauf, P. K. Sauer and W. L. Whittemore, New York.—p. 312.

California and Western Medicine, San Francisco

52:203-248 (May) 1940

Syphilis: Its Treatment in the Tuberculous Patient. W. Beckh, San Francisco.—p. 209.
Arthritis: Its Treatment with Undenatured Bacterial Antigens. Dorothy Walsh Schallig, Sacramento.—p. 212.
Eighth Nerve and Conduction Deafness. G. Selfridge, San Francisco.—p. 214.
*Chronic Salpingitis: Hysterosalpingectomy in Its Operative Treatment. J. C. McDermott, Los Angeles.—p. 217.
Laboratory Methods for Differentiation of Various Neurotropic Viruses. Beatrice F. Howitt, San Francisco.—p. 219.
Tinea Capitis on the Pacific Coast. E. A. Levin, San Francisco.—p. 221.
Anent Pronunciation of Medical Words. M. Thebaut, Oakland.—p. 222.
Fermentation: Retrospect. C. L. A. Schmidt, San Francisco.—p. 224.
Diverticulitis of Colon. C. J. Berne, Los Angeles, and A. C. Pattison, Pasadena.—p. 225.

Hysterosalpingectomy for Chronic Salpingitis.—McDermott analyzes results in sixty patients from the Los Angeles County Hospital, all of whom had had bilateral salpingectomies for chronic salpingitis and later had to have hysterectomies. He believes that for every one of these there must be several who suffer from symptoms due to the "left-over uterus" but who are so discouraged by the poor results of their one operation that they refuse a second; or there must be those whose symptoms are not quite sufficient to justify another major procedure. The argument of the proponents of conservatism favoring the preservation of the child-bearing function is pertinent only when plastic operations on the tube or unilateral salpingectomy are performed. The author believes that the chances of success are slight. The second argument, that of the physiologic value of the uterus, is met by the answers that the psychologic importance of menstruation is overestimated and that there is no proof that the uterus has an endocrine function, its only known purpose being that of child bearing. The argument of the technical difficulties of hysterectomy is refuted by the facts. To conserve an organ may or may not be conservative as far as the welfare of the patient is concerned. Incomplete surgery is often given standing by being labeled conservative.

Canadian Public Health Journal, Toronto

31:163-208 (April) 1940

Mental Hygiene in Canada. J. D. M. Griffin, Toronto.—p. 163.
Development of a Health Program in the Secondary School. D. V. Currey and A. G. Nicolle, St. Catharines, Ont.—p. 175.
Prevention and Control of Scarlet Fever. E. S. Bolton, Brandon, Man.—p. 184.
The Convulsive Child in the Community. W. W. Barraclough, Toronto.—p. 188.
Tuberculosis Survey in Bridgetown, Nova Scotia. J. S. Robertson, Yarmouth, N. S.—p. 194.

Connecticut State Medical Journal, Hartford

4:185-242 (April) 1940

Future Progress. A. B. Landry, Hartford.—p. 185.
Intestinal Intubation. C. H. Duston, Waterbury.—p. 187.
Clinical Problems in the Newborn Infant. H. H. Gordon, New York.—p. 191.
Focal Infection. J. R. Paul, New Haven.—p. 198.
Prepaid Medical Service. C. Barker, New Haven.—p. 200.
Schonlein-Henoch's Purpura Simulating Acute Surgical Abdomen. J. B. Herrman, New Haven.—p. 202.

Delaware State Medical Journal, Wilmington

12:57-72 (April) 1940

Massive Resection of Bone Sarcoma with Immediate Bone Graft Replacement. F. H. Albee, New York.—p. 57.

Georgia Medical Association Journal, Atlanta

29:205-250 (April) 1940

Simple Proctologic Procedures. C. E. Hall Jr., Atlanta.—p. 205.
Anesthesia in Rectal Surgery. A. M. Phillips, Macon.—p. 209.
Some Comments on Treatment of Congenital Clubfeet. J. H. Kite, Atlanta.—p. 212.
Some Problems of Medical Care as Seen by a County Health Officer. M. E. Groover Jr., Quitman.—p. 216.
Relief of Pain in Trigeminal Neuralgia. E. Walker, Atlanta.—p. 222.
Concerning Biliary Tract Disease, Special Reference to Acute Cholecystitis. C. W. Roberts, Atlanta.—p. 225.
Augusta: From Trading Post to Medical Center. J. Krafka Jr., Augusta.—p. 232.
Some Medical Aspects of Ophthalmoscopy. C. K. McLaughlin, Macon.—p. 236.

Illinois Medical Journal, Chicago

77:289-384 (April) 1940. **Partial Index**

Spontaneous Hemorrhage and Meteorologic Environment. W. F. Petersen, Chicago.—p. 325.
Electrocardiography and Clinical Practice. S. P. Waud, Chicago.—p. 332.
Care of Skin in Newborn Infant. R. I. Klein and P. L. Aries, Chicago.—p. 337.
Indication for Office Treatment in Rectal Disease. T. F. Reuther, Chicago.—p. 341.
Sulfanilamide in Diphtheria: Report of Cases. S. Fisher, Normal.—p. 342.
The Nervous System and the Allergic. J. Peters, Oak Park.—p. 343.
Surgery in the Mentally Ill. L. C. Arp and A. H. Arp, Moline.—p. 349.
Electrocardiography in General Practice. H. F. DeFeo, Chicago.—p. 353.
Chlorine Death Point of Cowpox Virus. H. Macdonald, Evanston.—p. 356.
Etiology of Senile Cataract. J. Shanks, Chicago.—p. 357.
The Mentally Handicapped Child. A. S. Hershfield, Chicago.—p. 369.
Periodic Paralysis. A. D. M. Kraus, Chicago.—p. 371.
Possible Cause of Malformations and Spontaneous Abortions. E. C. Piette, Oak Park.—p. 375.
Spinal Anesthesia: Modified Technic with Rationale of Its Employment in 5,000 Cases. P. Pernworth, Venice.—p. 376.

Iowa State Medical Society Journal, Des Moines

30:95-136 (March) 1940

Rheumatic Heart Disease: Review of Ninety-Five Cases. H. W. Rathe, Waverly.—p. 95.
Gastro-Enterostomy in Treatment of Peptic Ulcer. M. McKirdie and J. W. Dulin, Iowa City.—p. 100.
Record Librarian, an Aid to Doctors. Leona J. Bohach, Des Moines.—p. 103.
The Nervous Heart. B. F. Wolverton, Cedar Rapids.—p. 106.
Simple Foot Plate for Use in Skin Traction on Lower Extremities. L. M. Overton, Des Moines.—p. 110.

Johns Hopkins Hospital Bulletin, Baltimore

66:263-334 (May) 1940

*Lung Abscess: Analysis of Eighty-Eight Cases. A. M. Fisher and G. G. Finney, Baltimore.—p. 263.
Effect of Testosterone Propionate on Development of Tuberculosis in Immature Male Guinea Pig. W. H. Carnes and G. R. Biskind, Baltimore.—p. 297.
*Skin, Conjunctival and Scleral Reactions in Course of Therapy with Sulfathiazole. J. W. Haviland and P. H. Long, Baltimore.—p. 313.
Treatment of Laryngeal Papilloma in Children with Estrogenic Hormone: Preliminary Report. E. N. Broyles, Baltimore.—p. 319.

Lung Abscess.—Fisher and Finney report the results of various types of treatment in eighty-eight cases of lung abscess. All but five of the patients, who were between 3 and 6 years of age, were adults up to more than 61 years of age. Fifty patients either improved or recovered completely, and thirty-eight either died or failed to improve. The duration of the abscess is of great importance. Many patients get well spontaneously if the duration prior to admission is less than two months. The percentage of unsatisfactory results rises rapidly and progressively thereafter. The majority of lung abscesses are due to atelectasis and aspiration of infected material from the upper part of the respiratory tract. A much smaller proportion is due to infected pulmonary or sterile emboli followed by aspiration of infected material. Contributing factors are oral sepsis, alcoholism and malnutrition. The flora in the material from abscesses varies from case to case. Anaerobes and facultative anaerobes are frequent. The alpha-hemolytic (viridans) streptococcus is prominent in the sputum; it is at times aerobic and at other times facultatively anaerobic. Anaerobic streptococci are most often found in cultures of material obtained from the abscesses or from complicating empyemas. Anaerobic gram-negative bacilli are also frequently found in the abscess or empyema fluid. In most lesions a symbiosis of several varieties is encountered. Eradication of infections in the nose, throat and mouth, especially before operation, should lower the incidence of lung abscess. The type and depth of anesthesia and the position of the patient during operation are important. Other prophylactic measures are aspiration of secretions from the trachea during and after operation and postoperative inhalations of carbon dioxide and oxygen by patients not aerating their lung bases well. Postural drainage should be as nearly continuous as practical. When the sputum contains many spirochetes, arsenicals intravenously may yield dramatic results. Repeated therapeutic bronchoscopy is usually not indicated. Pneumothorax is useful only when the lesion is close to the hilus. Surgical treatment should

provide adequate drainage without contaminating the pleural cavity. This can usually be accomplished by a two-stage operation, the cautery being used for incision into the abscess. The chief barriers to successful treatment in the chronic abscesses are thick, rigid, fibrous walls which prevent collapse of the cavities, eroded blood vessels with recurrent hemorrhages, intrapulmonary spread or metastatic abscess formation and the unfavorable effect of the chronic infection on the patient's general condition. Acute fulminating abscesses usually lead to death in from a few days to a few weeks, in spite of treatment. Putrid empyema or pyopneumothorax was present in nine cases. Some form of closed drainage is the best means of dealing with these complications. Chronic alcoholism makes the prognosis much worse. All six patients with such a history died. Operations in the presence of oral infection is hazardous. There were four such cases, all fatal.

Skin and Ocular Reactions in Sulfathiazole Therapy.—During the first three and one-half months of sulfathiazole therapy in their clinic Haviland and Long encountered ten cases of cutaneous eruptions in a total of seventy-eight patients. The reactions appeared after the compound had been administered for several days. All the eruptions cleared rapidly, coincident with the disappearance of the drug from the blood stream. They were almost always accompanied by one or another of the companion signs of a sulfonamide reaction. The rashes fall into three groups: maculopapular, urticarial and erythema nodosum. The last two groups may merge into one another. They are quite different from the eruptions which follow the use of other sulfanilamide derivatives. The urticarial reactions involve the skin of the extremities, although the trunk was not spared when the rash became extensive. The involved area was raised, red, well outlined and irregularly thickened. As the lesions faded, they left a reddened area at the site for a few days, but even this soon faded. The reactions likened to "erythema nodosum" were more advanced stages of the so-called urticarial lesions. They were described as typical of "erythema nodosum" when knowledge of the medication was lacking. When the nodules regressed they did not turn dusky and reddish blue. There was no local discoloration. One entirely new type of drug reaction has been observed in this group. The lesion is a conjunctival and scleral injection, restricted in the main to the exposed portions of the bulbar conjunctiva and sclera. The injection has been extreme in six cases, with considerable burning and a watery discharge from the affected eye. Four of the six cases occurred in conjunction with the drug eruption, while two were seen as isolated phenomena. In three cases, the eye nearest the light was disturbed either solely or primarily. In two cases in which exposure to light was great the eruption and conjunctivitis were much more severe, involving the exposed surfaces and even the palpebral conjunctiva. There was no recrudescence of the conjunctivitis on exposure to light after sulfathiazole had been discontinued. That this reaction did not invariably follow exposure to light is shown by the fact that several other patients were exposed to winter daylight during the course of sulfathiazole therapy without untoward results. In view of the apparent relationship of some of these reactions to exposure to light, the question of light sensitivity as an etiologic agent in sulfonamide reactions is again raised.

Journal of Immunology, Baltimore

38:251-332 (April) 1940

Agglutinins for Sheep Erythrocytes in Rabbit Antipneumococcus Serums. M. R. Chassin, New York.—p. 251.
Thymoxyethyldiethylamine as Antagonist of Histamine and of Anaphylactic Reactions. S. R. Rosenthal and Mary Louise Brown, Chicago.—p. 259.
Antibody Formation in Lesion Produced by Tubercle Bacilli Suspended in Paraffin Oil: Excision of Antigenic Depot. J. O. Westwater, New York.—p. 267.
Toxicity of Antiseptics: Experiments with Hemolytic Complement. H. Welch, C. M. Brewer and A. C. Hunter.—p. 273.
Some Properties of Hemolysin Produced by Group A β-Hemolytic Streptococci. C. V. Smythe and T. N. Harris, Philadelphia.—p. 283.
Studies on Occurrence of V Factor (Coenzymes I and II) in Normal and Pathologic Spinal Fluids. Celia Scheer, New York.—p. 301.
Further Inoculation Experiments with Common Cold Virus. H. M. Powell, A. L. Sparks and G. H. A. Clowes, Indianapolis.—p. 309.
Antigenic Composition and Immunizing Properties of Trypanosomes. I. J. Kligler, L. Olitzki and Helen Kligler, Jerusalem, Palestine.—p. 317.

Journal of Nutrition, Philadelphia

19:311-414 (April) 1940

Iron Utilization in Dogs on Milk Diets. D. V. Frost, C. A. Elvehjem and E. B. Hart, Madison, Wis.—p. 311.
Anti-Gray Hair Vitamin, New Factor in Vitamin B Complex. G. Lunde and H. Kringstad, Stavanger, Norway.—p. 321.
Cystine and Methionine Deficiency in Mold Proteins. C. E. Skinner and A. E. Muller, Minneapolis.—p. 333.
Cure of Nutritional Muscular Dystrophy in Rabbit by Alpha-Tocopherol and Its Effect on Creatine Metabolism. C. G. Mackenzie and E. V. McCollum, Baltimore.—p. 345.
Amino Acids Required for Complete Replacement of Endogenous Losses in Adult Rat. E. W. Burroughs, Helen S. Burroughs and H. H. Mitchell, Urbana, Ill.—p. 363.
Interdependence Among Amino Acids in Their Utilization in Endogenous Metabolism. E. W. Burroughs, Helen S. Burroughs and H. H. Mitchell, Urbana, Ill.—p. 385.
Factor II Deficiency in Dogs. P. J. Fouts, Indianapolis; O. M. Helmer and S. Lepkovsky.—p. 393.
Retention of Calcium and Phosphorus by Preschool Children. H. B. Pierce, R. G. Daggs, A. B. Meservey and W. J. Simcox, with technical assistance of D. H. Howe and M. W. Foote, Burlington, Vt.—p. 401.

Journal of Pediatrics, St. Louis

16:549-678 (May) 1940

Certain Effects of Hemophilia on Growing Skeleton: Some Roentgenographic Observations on Overgrowth and Dysgenesis of Epiphyses Associated with Chronic Hemarthrosis. J. Caffey and E. R. Schlesinger, New York.—p. 549.
*New Treatment for Furunculosis (Sulfamethylthiazole). C. G. Grulee and J. T. Mason, Chicago.—p. 566.
Behavior Examination of Infants as Aid to Early Diagnosis of Central Nervous System Disease. Helen Thompson and P. A. Bearg, New Haven, Conn.—p. 570.
Neural Maturation as Exemplified in Achievement of Bladder Control. Myrtle B. McGraw, New York.—p. 580.
Equine Encephalomyelitis (Western Type) in Children: Report of Cases with Residual Atrophy of Brain. J. H. Davis, San Francisco.—p. 591.
Idiopathic Lipemia with Secondary Xanthomatosis, Hepatosplenomegaly and Lipemic Retinalis. M. Goodman, H. Shuman and S. Goodman, Boston.—p. 596.
*Tetany in Infancy and Childhood: Clinical Study of Forty-Five Cases Seen in North China, with Especial Reference to Etiology. F.-T. Chu and C. Sung, Peiping, China.—p. 607.
Capillary Fragility and Ascorbic Acid Studies. H. G. Rapaport, S. H. Miller and A. Sicular, New York.—p. 624.
Value of Tuberculin Patch Test in Case Finding. H. Vollmer, New York.—p. 627.
Creeping Eruption (Ankylostoma Braziliense Infestation) with Spontaneous Remissions and Recurrences: Report of Two Cases. R. H. Rigdon, Memphis, Tenn.—p. 637.

Sulfamethylthiazole for Furunculosis.—Grulee and Mason used sulfamethylthiazole for the treatment of three children with furunculosis of the scalp. Improvement began within from twenty-four to forty-eight hours. The furuncles of one child were almost completely healed in six days; in the others new lesions developed when the drug was discontinued, but all cleared up after a total of thirteen and twenty-three days of treatment, respectively. The dosage used was from 0.5 to 1 Gm. every four hours. The infant who required twenty-three days of treatment had the most severe case of furunculosis ever seen by the authors. The child had been hospitalized when 2½ months old and treated variously for eight months, with no apparent improvement. On the tenth day after sulfamethylthiazole was started in this case the abscesses still showed positive cultures. Vomiting, toxic rash and neutropenia developed in two of the children, but all this cleared up without serious after-effects.

Tetany in Infancy and Childhood.—Chu and Sung report the results of vitamin D and calcium therapy in forty-five cases of tetany in children from birth to 12 years of age. The following features had to be present: hypocalcemia (serum calcium content of 8 mg. or less per hundred cubic centimeters), typical attacks of spontaneous carpopedal spasm and other manifestations of tetany, such as convulsions, muscular spasms, Trousseau's sign, Chvostek's sign or Erb's sign. This material differs from cases reported in the Western literature in that the onset of tetany in thirty of their children occurred in the first three months of life and also in that their tetany patients often show rickets, even if they are no older than 3 months. These differences are explained by the fact that the mothers who bear and feed these children suffer from abnormal vitamin D metabolism. Twenty-six of thirty-five children who

had x-ray examinations of the long bones showed rachitic signs of varying degrees, mostly moderate and mild. Clinically, twenty-one of these children were rachitic. Calcium therapy alone may elevate the serum calcium temporarily, but the active symptoms of tetany will recur until vitamin D is supplied in sufficient amount. Therefore antirachitic treatment should be instituted simultaneously or a few days after calcium therapy is begun. Concentrated preparations of vitamin D bring the serum calcium to a normal level within a short period. Fifty per cent of the patients were breast fed before tetany developed. In a community in which the mother's nutrition is usually not adequate, human milk should not be relied on to protect the sucklings from tetany. The case fatality of the series was 20 per cent. The chief causes of death were various infections in six, neoplasm of the liver in one, "idiopathic hypertrophy of the heart" in one and probably laryngospasm in another case. Except for the latter case, none of the deaths were directly related to tetany. Uncomplicated cases of tetany, if correctly diagnosed and appropriately treated, have an excellent prognosis.

Journal of Thoracic Surgery, St. Louis

9:357-470 (April) 1940

Selective Type of Thoracoplastic Operation. W. A. Hudson, Detroit.—p. 357.
*Study of Immediate and Late Results in 511 Patients Subjected to Thoracoplasty. E. J. O'Brien, J. C. Day, P. T. Chapman and W. M. Tuttle, Detroit.—p. 364.
Extrafascial Air as Adjunct to Thoracoplasty with Extrafascial Apicolysis. T. B. Aycock, O. C. Brantigan and H. Welch, Baltimore.—p. 382.
*Four Years' Experience with Extrapleural Pneumothorax and Oleothorax. O. S. Proctor, Seattle.—p. 392.
*Diagnosis and Surgical Therapy of Patent Ductus Arteriosus. J. C. Jones, F. S. Dolley and L. T. Bullock, Los Angeles.—p. 413.
Operation for Development of Collateral Circulation to Heart. P. Heinbecker and W. A. Barton, St. Louis.—p. 431.
Acute Putrid Abscess of Lung: IV. Surgical Treatment and Results in Eighty-Six Consecutive Cases. H. Neuhof and A. S. W. Touroff, New York.—p. 439.
Thoracoplasty Without Section of Muscles. R. Finochietto, Buenos Aires, Argentina.—p. 450.

Results of Thoracoplasty.—O'Brien and his associates performed a total of 1,404 operations on 511 patients from August 1932 to Dec. 31, 1938. The disease was unilateral in 202 cases and bilateral in 309. Ninety-seven patients had contralateral pneumothorax at the time of thoracoplasty. The disease was predominantly productive in 368 cases. It was mixed in 104 and exudative in thirty-nine. Four hundred and ninety-six patients had cavernous lesions. Thoracoplasty was done in fourteen cases for closure of tuberculous empyema. With few exceptions the first stage consisted of complete removal subperiosteally of the upper three ribs through a posterior incision. Successive stages were performed at three week intervals, long sections of two or three ribs being removed at a stage until the desired amount of collapse was obtained. Only infrequently has it been necessary to subject the patient to more than four stages. The fifth and sixth stages represent secondary operations or revisions. Anterolateral stages were done in forty-nine, and secondary operations (revisions) were necessary in seventy-one. The immediate fatality rate (within eight weeks after operation) was 9.39 per cent; the late fatality rate (from two months to six and one-half years after operation) 9.78 per cent, the total 19.17 per cent. Cavity closure was effected in 87.02 per cent and sputum conversion in 81.65 per cent. In 187 cases the condition has apparently been cured, in eighty-two it has been arrested, in forty it has been apparently arrested, in twenty-six it is quiescent and in forty-nine it is unstable, and twenty-six cases are untraced. Of 296 patients at home, 224 are working or are able to work. The experience with thoracoplasty in the very young (youngest patient 8 years) has been disappointing. Although gratifying results have been obtained in the adolescent group so far as cavity closure and sputum conversion are concerned, the authors have been reluctant to subject these patients to thoracoplasty because of the possibility of marked deformity. Extrapleural pneumothorax may prove to be a valuable procedure in controlling, at least temporarily, the lesions in this group of patients. The fatality rate was only 3 per cent greater in the exudative than in the productive type of lesion.

Extrapleural Pneumothorax and Oleothorax.—Proctor considers extrapleural pneumothorax a valuable addition to thoracic surgery because it provides a chance for recovery in many otherwise hopeless cases. If permanent collapse is desired, the diseased area should have oleothorax, which attains the goal of a permanent filling. In the majority of his forty-four cases, extrapleural pneumothorax has been converted into oleothorax. When it is intended from the start to use oil as a permanent means of keeping a localized area of lung compressed an extrapleural pneumothorax is established first. Two or three months later, when the extrapleural space is of the size and location desired, it is filled with oil. The extrapleural space may be varied in size by the amount of pressure used in the refills. The best procedure is to make the original space larger than one contemplates leaving it and with the use of less pressure allow the lung to reexpand to the desired point. Olive oil or liquid petrolatum may be used with or without the addition of cajuput oil. The author preferred olive oil with 2 per cent cajuput oil. In many instances it may be preferable to use liquid petrolatum to obviate refills. The extrapleural space is filled in three or four sessions, depending on the size of the space. Additional oil may be added every six to twenty-four months. Extrapleural pneumothorax with oleothorax presents advantages over thoracoplasty.

Patent Ductus Arteriosus.—Jones and his associates report clinical observations on seven patients with patent ductus arteriosus in whom they performed surgical ligation. Six patients were between 4 and 13 years of age and one patient was 31. All except the adult showed a high pulse pressure with low diastolic blood pressure. The diastolic pressure was often difficult to measure. One of the patients had a classic Corrigan pulse and pistol shot sound over the femoral artery. Another patient had these signs appear only after exercise. All patients had typical physical signs and laboratory evidence of a patent ductus arteriosus. The most important sign of the condition is a continuous murmur in the pulmonic area, varying in intensity during each cardiac cycle and usually accompanied by a thrill. Increase of the pulmonary second sound, prominence of the pulmonary conus on x-ray examination, absence of cyanosis, increase of pulse pressure with low diastolic pressure and absence of axis deviation in the electrocardiogram are usually present as confirmatory aspects. The authors describe the surgical technic and review the operative and postoperative courses. They conclude that these cases must be followed over a long period before the described procedure can be adequately evaluated. They have successfully ligated a patent ductus arteriosus in six additional cases, bringing the total to thirteen.

Journal of Urology, Baltimore

43:533-622 (April) 1940

Carcinoma in Exstrophy of Bladder. P. E. McCown, Indianapolis.—p. 533.
Management of Intractable Cystitis Associated with Vesical Fistula and Osteomyelitis of Pelvic Girdle: Report of Three Cases Following Traumatic Rupture of Bladder and Fractured Pelvis. C. P. Mathé, San Francisco.—p. 543.
Lumbosacral Subarachnoid Tap. J. A. Taylor, New York.—p. 561.
Present Status of Transurethral Resectionists, Competent and Otherwise. F. E. B. Foley, St. Paul.—p. 565.
The Training of a Urologic Surgeon. C. C. Higgins, Cleveland.—p. 572.
Simplified Determination and Practical Interpretation in Cystometry: Critique of Attempts Made to Complicate This Procedure. M. Muschat, Philadelphia.—p. 582.
New Cutaneous Ureterostomy Device. M. E. Greenberger and I. Helfert, New York.—p. 588.
*Occurrence of Urologic Complications in Humans Following Sulfapyridine Therapy. W. Antopol, Newark, N. J.—p. 589.
Prevention of Recurrence of Urinary Stone. W. M. Kearns, Milwaukee.—p. 598.
New Method for Cleansing and Sterilizing Ureteral Catheters, with Special Reference to Tubercle Bacillus. J. H. Winer and F. W. La Cava, New York.—p. 611.
Clinical Value of Delayed Urogram. W. F. Braasch and A. K. Doss, Rochester, Minn.—p. 617.

Urologic Complications of Sulfapyridine.—Antopol states that sixteen of forty patients with pneumococcic pneumonia receiving sulfapyridine showed a transient microscopic hematuria. X-ray examination of two patients with considerable hematuria revealed a urolith. This is in accord with the experimental studies in which the concretions are radiotransparent. A secondary deposition of a calcium shell occurs after

the calculus has been present for a long time. The concretions are soft and friable and can be either redissolved or washed out. The entire urinary output was collected and examined daily. This revealed a hematuria varying from 2 to more than 100 erythrocytes per high power field, with most cases containing between 3 and 5 cells. In 100 collected cases of pneumococcic pneumonia before the advent of sulfapyridine therapy, erythrocytes were found in specimens of urine of only eleven patients; in six of these there was less than 1 erythrocyte per high power field and in the other five less than 3 cells. In the sulfapyridine group of patients whose urine was examined before or in the early period of therapy no erythrocytes were found. The hematuria was usually detectable in from one to three days after sulfapyridine therapy was initiated and disappeared shortly after it was discontinued. No residual symptoms were exhibited by any of the surviving patients. In one instance no concretions were demonstrable at necropsy in the urinary tract. However, there was a pronounced localized non-necrotizing hemorrhagic papillitis and pyelitis and severe tubular degeneration in the adjacent areas. The degenerative renal changes corresponded with those found in animal experiments. It is not unlikely that the lesions found at necropsy, as well as the cause of the hemorrhage in one case, may have been primarily renal degenerative or vascular and noncalculous in nature. Because of this possibility and because blood clots have been found to be the cause of obstruction in some of the experimental animals, the latter might well have been the cause of the colicky pain which radiated from the lumbar region anteriorly to the groin, complained of by one patient. Gross hematuria was present at this time. X-ray examination of the abdomen revealed no calculi. Fluids were forced and the hematuria cleared up in four days. There were no residual signs.

Kentucky Medical Journal, Bowling Green

38:139-186 (April) 1940

Treatment of Varicose Veins in Lower Extremity. W. Barrow, Lexington.—p. 140.
Acute Laryngotracheobronchitis in Children. H. S. Andrews, Louisville.—p. 145.
Consideration of Lesions in Upper Urinary Tract Simulating Gastrointestinal Disorders. L. Atherton, Louisville.—p. 152.
Some Thoracic Complications of Pulmonary Tuberculosis. H. C. Sweany, Chicago.—p. 161.
The Public Health Possibilities of Rural Ambulatory Pneumothorax. O. A. Beatty, Glasgow.—p. 164.
Exhibits of the Southern Medical Meeting at Memphis, November 1939. M. Casper, Louisville.—p. 166.
Sternal Marrow Biopsy: Methods, Indications and Limitations. H. Gordon, Louisville.—p. 170.
Stream Pollution. H. R. Leavell, Louisville.—p. 174.

Medical Bull. of Veterans' Adm., Washington, D. C.

16:311-414 (April) 1940

Value of Rytz Test. L. E. Nolan, G. W. Twomey and D. R. Werba.—p. 311.
Recurrent Inguinal Hernia: Analysis and Statistical Study, with Discussion of the Common Errors in Its Repair. R. L. Ramos and C. C. Burton.—p. 318.
Value of Shock Treatment of Chronic Schizophrenia. C. N. Baganz.—p. 326.
Cardiac Pain: Statistical Study. E. A. Martin.—p. 331.
Study of Autopsy Protocols in Eighty-Six Deaths from Gastric Lesions. S. S. Tanz.—p. 334.
Tularemic Pneumonia: Report of Four Cases. T. E. Dredge.—p. 337.
Carcinoma of Prostate Gland with Metastases. L. G. Glickman and L. E. Nolan.—p. 343.
Original Method for Repair of Fracture of Patella. J. W. Wheeler.—p. 349.
Cevitamic Acid in Treatment of Peptic Ulcer with Hemorrhage. W. S. Anderson.—p. 351.
Influence of Heterophile Antigen in Nervous and Mental Disease. E. W. Lazell.—p. 353.
Evaluating Fungicides in Prophylaxis and Treatment of Epidermophytosis of Feet. L. Birnbaum and Mary A. White-Sweres.—p. 371.

Michigan State Medical Society Journal, Lansing

39:293-372 (May) 1940

Psychiatry in the Service of Schools. H. C. Schumacher, Cleveland.—p. 307.
Treatment of Pneumonia with Sulfapyridine and Specific Serum. M. Finland, Boston.—p. 311.
Sickness Disability Among Wage Earners. M. Woody, New York.—p. 318.
Hyperthyroidism: Treatment. G. Crile Jr., Cleveland.—p. 321.

Military Surgeon, Washington, D. C.

86:425-528 (May) 1940. **Partial Index**

Relationship of Red Cross to the Army; Welfare Service Rendered Hospitals and Troops in the Field. D. C. Smith.—p. 425.
First Aid Appliances for the Ambulance Surgeon. F. P. Dueno.—p. 435.
Transport by Air of the Sick and Wounded. E. Hippke.—p. 439.
Influence of Scurvy on Maritime History. L. H. Roddis.—p. 444.
Vinethene: Inhalation Anesthetic for Rapid Induction and Quick Recovery: Administered by Open Drop or in Gas Machine for Dental Oral Surgery. B. S. Rothwell.—p. 452.
Gunshot Wounds of Abdomen. J. W. Davis.—p. 456.
Importance of Proper Psychiatric Survey in Enrolment of Personnel of Military Forces. C. N. Baganz.—p. 471.
Electrocardiographic Studies of Army Air Corps Officers. H. P. Marvin and W. F. Hall.—p. 497.

Nebraska State Medical Journal, Lincoln

25:121-164 (April) 1940

Treatment of Carcinoma of Breast. E. W. Rowe, Lincoln.—p. 121.
Cost of the Care of the Cancer Patient. J. F. Kelly, Omaha.—p. 128.
Cancer of Stomach. J. E. Uridil, Hastings.—p. 130.
*Cancer of Lip: Consideration of Its Prophylaxis, Diagnosis and Treatment. H. B. Hunt, Omaha.—p. 133.
Clinical Indications for Biopsy. J. M. Neely, Lincoln.—p. 138.
Note on Examination for Cancer. N. H. Rasmussen, Scottsbluff.—p. 142.

25:165-204 (May) 1940

Plastic Repair Following Removal of Neoplasms About Head. F. A. Figi, Rochester, Minn.—p. 165.
Infant Mortality. R. H. Loder, Lincoln.—p. 172.
Care of the Premature Infant. E. W. Zeman, Omaha.—p. 174.
Premature Infant Mortality. R. H. Loder, Lincoln.—p. 177.
Low Back and Sciatic Pain Caused by Intervertebral Disk Herniation. J. J. Keegan and A. I. Finlayson, Omaha.—p. 179.
Tuberculosis Survey: Three-Year Résumé. E. A. Rogers, Lincoln.—p. 185.
*Cancer of Lip: Consideration of Its Prophylaxis, Diagnosis and Treatment. H. B. Hunt, Omaha.—p. 187.
Hemp Pollen Sensitivity in Omaha. E. S. Maloney and M. H. Brodkey, Omaha.—p. 190.

Cancer of Lip.—Hunt states that any progressive or persistent "sore," "fever blister," "crack" or "lump" on the lower lip which does not heal in three weeks must be considered cancer until disproved by biopsy or darkfield examination. Cancer of the lip is fifty times as prevalent in men as in women. Many extraneous factors hasten its development in a susceptible person. Sunburn should be avoided. Repeated blistering of the lip and skin by sunlight or ultraviolet rays is definitely injurious and probably accounts for the unusually high incidence of cancer of the face in the farming population. The overwhelming predilection of cancer for the lower lip, occurring in 98 per cent of the male cases, is in keeping with the relatively greater exposure of the lower lip to sunlight and other disturbing influences. Other probable precipitating causes may be repeated burns from short cigarets, short stemmed pipes, overly hot foods, snuff, mechanical irritation, overhanging, sharp, irregular upper incisor or cuspid teeth, and repeated chapping and cracking by wind, weather and sun. All chronic lesions showing continued overgrowth of tissues are eventually precancerous lesions and should be eliminated. Leukoplakia should be eradicated, particularly in case of ulceration or extension. A papilloma or keratotic horn should be treated as a low grade carcinoma. Correctly administered, roentgen and radium therapy are as effective as surgery in controlling the primary lesion in cancer of the lip or skin. The first series of roentgen or radium treatments must be correctly applied if success is to be attained, as the lesion will never respond as well to subsequent irradiation of equal intensity. This loss of radiosensitivity is due to impaired blood supply and fibrosis of the bed of the tumor. Radiotherapy usually gives a better cosmetic result than surgery and better preservation of function, particularly in the large papillary tumors. Roentgen and radium therapy give essentially the same biologic effect and differ primarily in distribution of intensities. The therapeutic agent will depend on the gross morphologic changes of the lesion, history of previous treatment, the grade of the tumor, the antipathies of the patient and the experience of the therapist. The small superficial lesions are treated by low voltage x-rays or by radium plaque. The infiltrating cancers are treated by intermediate voltage x-rays supplemented by interstitial radium in the deeper lesions. The large papillary tumors are treated by intermediate or high voltage, lightly filtered x-rays supple-

mented by interstitial radium through the base of the tumor. Occasionally the pendulous portion of the large tumor may be ablated to expose the base, but this is not necessary. In the ulcerating destructive lesion with extensive sloughing away of the lip, the author prefers immediate wide surgical excision followed directly by plastic repair. Local invasion of bone is treated by electrocoagulation with or without local excision. In persistent or recurrent carcinoma after inadequate radiotherapy, surgical resection, in view of acquired radioresistance, is generally advised. A radiation ulcer which persists after four months is best resected and plastically repaired. Metastases from cancer of the lip occur first in the submaxillary and submental nodes and rarely in the cervical nodes without gross involvement of the suprahyoid triangles. Cancers arising at the corners of the mouth tend to metastasize unusually early. Enlargement of lymph nodes suggests metastases but frequently is due to inflammation secondary to ulceration and infection of the cancer. Metastases are present in about 25 per cent of patients with palpably enlarged but movable nodes. Metastases will develop in about 10 per cent of patients showing no initial adenopathy. The prospects of a "five year cure" are from 90 to 95 per cent without apparent metastases, 33⅓ per cent with an early single focus of metastasis in the suprahyoid structures and only 1 per cent after metastases are present in the cervical lymph nodes.

New England Journal of Medicine, Boston

222:699-738 (April 25) 1940

Rationale and Technic of Sympathectomy for Relief of Vascular Spasm of Extremities. R. H. Smithwick, Boston.—p. 699.
Compressions of Vertebral Bodies During Convulsive Therapy: Preliminary Note Regarding Their Prevention. E. Friedman, A. L. Brett and E. C. Vogt, Waltham, Mass.—p. 704.
Relation Between Leukemia and Tuberculosis: Report of Case. H. Ulrich and H. Parks, Boston.—p. 711.

North Carolina Medical Journal, Winston-Salem

1:177-228 (April) 1940

Application of Medical Science to the Individual. G. C. Robinson, Baltimore.—p. 177.
Carcinoma of Bronchus: Some Findings in Twenty Cases. J. A. Harrill, Winston-Salem.—p. 180.
Metrazol in Treatment of Mental Disease: Report on Its Use at the State Hospital. R. H. Long, Morganton.—p. 184.
Diagnosis and Treatment of Anemias. R. P. Morehead, Wake Forest.—p. 187.
The Mental Hygiene of Childhood in the Public Health Program. R. S. Crispell, Durham.—p. 190.
Newer Knowledge of Vitamins. Victoria Carlsson, Greensboro.—p. 195.
Diabetic Coma. P. F. Whitaker and K. P. Turrentine, Kinston.—p. 201.
Prophylactic Measures of Proved Value in Some Infectious Diseases. J. B. Sidbury, Wilmington.—p. 204.
Distribution of Syphilis Among Patients in Pediatrics and Obstetric Practice. D. E. Robinson, Burlington; W. B. Perry, Jacksonville; H. R. Germer, Winston-Salem, and G. M. Leiby, Washington, D. C.—p. 208.
The Place of Education and Public Health in Cancer Control. C. C. Carpenter and R. P. Morehead, Wake Forest.—p. 210.

Northwest Medicine, Seattle

39:119-156 (April) 1940

Certain Biologic Aspects of Cancer. N. A. Womack, St. Louis.—p. 123.
Metrazol in Treatment of Psychoses. D. C. Burkes, Portland, Ore.—p. 127.
*Nitrogen Gas Convulsive Therapy. C. Halvorsen, Fort Steilacoom, Wash.—p. 130.
Practical Approach to Anxiety Tension States. H. H. Dixon and G. B. Haugen, Portland, Ore.—p. 132.
Pediatric Treatment of the Acute Ear. N. W. Clein, Seattle.—p. 135.
Problems in Industrial Medicine: Some Social and Economic Aspects. H. L. Blosser, Portland, Ore.—p. 137.

Nitrogen Gas Convulsive Therapy.—Halvorsen used pure nitrogen in the convulsive treatment of schizophrenic and involutional depressions. He believes that for patients in the upper age brackets with brittle bones gas convulsions have a wider margin of safety than convulsant doses of metrazol. Gas convulsions are less severe and therefore the dangers of vertebral and extremity fractures are lessened. The patient is given insulin sufficient to produce coma and in about two hours, when myoclonic jerks occur, pure nitrogen gas is administered by mask through a rebreathing bag. All mask outlets are closed. No atmospheric air is admitted. The lime filter is shut off. In from one to two minutes cyanosis appears and gradually deepens. Tonic stiffening begins on an average of from three to four minutes, noticeable first in the small muscles of the eye, fingers and toes. The tonic convulsion includes all the body muscles during the next thirty seconds. The end point of maximal tonic spasm is apnea due to respiratory muscle spasm when the mask is removed and the patient is turned to the prone position. This serves to drain saliva and prepare the patient for artificial respiration. The apnea is permitted to last as long as it can to accentuate the asphyxia. The patient's color returns to normal within from five to ten seconds after respiration begins and sufficient glycogenolysis usually follows to neutralize the insulin and awaken the patient from the coma. On awakening, the patient eats his withheld breakfast with relish. A tendency toward jovial sociability replaces the pretreatment dulness. Out of twenty-two convulsions given seven patients one patient had a headache. There have been no osseous injuries and while muscular stiffness occurs this is not the extreme soreness that follows metrazol convulsions. Rapid improvement toward normal personality occurred and this without the reactions of fear that metrazol produces. Nitrogen produces anoxemia (the principle of shock therapy) which leads to a tonic convulsion.

Ohio State Medical Journal, Columbus

36:481-584 (May) 1940

Common Errors in Diagnosis of Heart Conditions. A. C. Ernstene, Cleveland.—p. 497.
Some of the Psychiatric Problems Encountered by the General Practitioner. Dorothy E. Donley, Columbus.—p. 501.
Chemotherapy of Streptococcic Infections. C. F. Garvin, Cleveland.—p. 504.
Chemotherapy of Puerperal Sepsis. A. Cline, Dayton.—p. 509.
Prenatal Care in General Practice. D. Macdonald, St. Catharines, Ont.—p. 511.
Treatment of Giardiasis. A. A. Hall, Columbus.—p. 514.
Reinfection in Syphilis. G. E. Clarke and E. L. Glicksberg, Cincinnati.—p. 517.
Abdominal Pregnancy: Report of Case at Full Term. J. R. Sprague and M. R. Chappel, Athens.—p. 520.
Eye Changes in Pregnancy. B. R. Sakler, Cincinnati.—p. 522.
Recognition of Skin Cancer. H. Nieman, Dayton.—p. 525.
Interpretation of Blood Sugar Figures. H. J. John, Cleveland.—p. 527.
Acute Abdominal Surgery in Childhood. P. W. Sutton, Cincinnati.—p. 529.

Oklahoma State Medical Assn. Journal, Oklahoma City

33:1-58 (April) 1940

Traumatic Affections of Nose. G. H. Kimball and N. R. Drummond, Oklahoma City.—p. 1.
Principles in Treatment of Acute and Chronic Syphilis. J. A. Kolmer, Philadelphia.—p. 4.
Study of Infant Mortality in Oklahoma, 1934-1938. P. J. Collopy and J. C. Rose, Oklahoma City.—p. 9.
Some Observations in Appendicitis. E. B. Neff, Oklahoma City.—p. 14.
Indications for Surgery in Treatment of Gastric and Duodenal Ulcer. M. F. Jacobs, Oklahoma City.—p. 16.

Philippine Medical Association Journal, Manila

20:61-126 (Feb.) 1940

Curability of Ileocecal Tuberculosis by Radical Excision. G. Santos-Cuyugan, F. S. Guerrero and P. T. Nery, Manila.—p. 61.
*Rare Bacterial Endocarditis Observed Among Culion Lepers. M. B. Lara, Culion.—p. 69.
Diffuse Carcinoma of Stomach (Linitis Plastica) with Secondary Krukenberg Tumor of Ovary. C. Monserrat, Manila.—p. 75.
Objectives in Teaching Physiology. E. Bulatao, Manila.—p. 79.
Dental Survey: Preliminary Report. G. B. Felizardo, M. Y. Matias and A. M. Carreon, Manila.—p. 83.

Bacterial Endocarditis Among Lepers.—According to Lara, the most frequent type of endocarditis among lepers in Culion is that caused by a gram-negative diplococcus bacillus which Solis had invariably obtained in blood cultures from certain cases of septicemia. This organism produces an infection of two to four weeks' duration, with the development of large valvular vegetations resulting in septic embolic phenomena in the spleen and the kidneys, with fever, leukocytosis, secondary anemia and an invariably fatal outcome. The incidence of the disease is higher than with other types of bacterial endocarditis. Current books on pathology, bacteriology and internal medicine make no mention of it. This type of endocarditis occurs in only one place in the world—Culion, Philippine Islands. Its occurrence in a small number of the several thousand lepers confined in the colony, as well as its distinct morphologic and cultural

characteristics, leaves no doubt that it is an entirely different organism. No distinctive epidemiologic peculiarities are apparent. How the organism enters the body is not known. The disease occurs in lepers whether they have ulcers or not. The microscopic appearance of the valvular vegetations is that of a superficial layer of fibrin in which are enmeshed erythrocytes and leukocytes, many of which are in a degenerating condition. Beneath this layer is a dense bacterial growth and, still deeper, a formless débris of fibrin, erythrocytes, leukocytes and probably dead bacteria. The rest of the endocardium and the epicardium is studded with petechial hemorrhages or larger ecchymoses. An acute myelomalacia is the rule. The spleen is enlarged and softened, with multiple red or pale infarcts on its outer parenchyma. The liver and the kidneys are enlarged, soft and pale. The peritoneum may be involved in a septic peritonitis, particularly that portion adjacent to a surface infarct of the spleen. There is a secondary anemia and a leukocytosis. The adrenals present acute infectious softening. The causative organisms are readily isolated by blood cultures. Smears and sections always show their presence in the valvular vegetations, less constantly in the parenchyma and in the infarcts in the spleen. Quite suddenly, without any history of an infected wound, the disease is ushered in with general body and joint pains, fever and headache. In about a week a moderate to high fever, remittent or intermittent, ensues and probably some precordial pain. A blood culture at this time will reveal abundant numbers of the organism. The precordial complaint becomes more marked every day, and cardiac murmurs appear. Embolic phenomena appear at various places, most constantly in the spleen, which is enlarged. No medicine available and tried in Culion was able to save a single patient. Treatment consists of careful and diligent nursing and the relief of symptoms.

Psychiatric Quarterly, Utica, N. Y.

14:231-454 (April) 1940. **Partial Index**

Psychopathic Personality Among the Mentally Defective. E. J. Humphreys, Thiells, N. Y.—p. 231.
Neuropathology of Benzedrine Poisoning. P. G. Schube and N. Raskin, Boston.—p. 264.
Simple Experimental Device for Prediction of Outcome of Insulin Treatment in Schizophrenia. Z. Piotrowski, New York.—p. 267.
Therapeutic Considerations in Psychoses of Old Age. G. F. Etling, Orangeburg, N. Y.—p. 274.
Determining Prognosis in Involutional Psychoses. J. A. Brussel, Brentwood, N. Y.—p. 301.
Injection Treatment of Varicose Veins in a State Hospital. M. A. Yost, Buffalo.—p. 307.
Testosterone in Psychotic Male Homosexuals. H. S. Barahal, Kings Park, N. Y.—p. 319.
Personality Factors in Alcoholic Psychoses. P. H. Hoch, Ward's Island, N. Y.—p. 338.
Therapeutic Problems in the Alcoholic Psychoses. C. E. Howard and H. M. Hurdum, Hudson, N. Y.—p. 347.
Relative Effects of Phenobarbital and Sodium Bromide as Anticonvulsants in Epileptic Psychoses. R. W. Southerland, Brentwood, N. Y.—p. 382.
Metrazol Therapy in the Face of Severe Physical Disorders. G. W. Robinson Jr. and P. Shelton, Kansas City, Mo.—p. 388.
Force Required to Crush Vertebrae: Its Probable Mechanical Relation to Postmetrazol Fracture. W. Furst, Norristown, Pa.—p. 397.
Alcoholism, Its Frequency, Etiology and Treatment. W. A. Strong, Willard, N. Y.—p. 403.

Public Health Reports, Washington, D. C.

55:667-710 (April 19) 1940

*Tularemia (Rabbit Fever).—p. 667.
Effect of Petroleum Ether Extract of Mouse Carcasses on Skin Tumor Production in C57 Black Mice. J. J. Morton and G. B. Mider.—p. 670.
Bacterium Tularense: Its Persistence in Tissues of Argasid Ticks Ornithodoros Turicata and Ornithodoros Parkeri. G. E. Davis.—p. 676.
Ticks (Ornithodoros Spp.) in Arizona Bat "Caves." C. B. Philip.—p. 680.
Studies on Trichinosis: VIII. Antigenic Phase of Trichinosis. J. Bozicevich and L. Detre.—p. 683.
Occurrence of Anopheles Darlingi Root in British Honduras and Guatemala. W. H. W. Komp.—p. 693.

Tularemia.—This article reports 2,088 cases of tularemia with 139 deaths which occurred in the United States during 1938. Wild rabbits and hares are the direct cause of more than 90 per cent of cases in human beings in the United States. Horseflies have caused cases in Utah and wood ticks in Montana and the surrounding states. The dog tick has caused cases, principally in the Southern states. Contact with sheep has caused cases in the Northwest among shearers, butchers and herders, the infection entering the hands from contact with wood ticks and tick feces located in the wool. Sheep are only slightly susceptible. Insect bites (species undetermined) caused tularemia. One infected person had picked ticks from a dog and crushed them with his fingers. Skinning or dressing of tree squirrels, opossums, sage hens, coyotes, deers, red foxes, bull snakes, quails, ground hogs, muskrats, hogs or skunks has been followed by tularemia. Scratches or bites from cats or raccoons, dissection of infected laboratory animals or eating of insufficiently cooked wild rabbit meat has caused tularemia. A water-borne epidemic was reported in 1935 from Russia. Early in 1940, officers of the U. S. Public Health Service reported that water in three streams in Montana had been found to be contaminated with Bacterium tularense. The organism may be transmitted from one animal to another and from animal to man by the bite of insects, notably the wood tick, the dog tick and the deer fly. The pelts of infected rabbits and other animals may also convey the infection. About three and one-half days after exposure illness begins suddenly with headache, chilliness, vomiting, fever, prostration and aching pains all over the body. The symptoms are often mistaken for those of influenza. The sore, usually on the hand, develops into an ulcer, and the nearby lymph glands, at the elbow or in the armpit, become enlarged, tender and painful and later may develop into abscesses. Illness and fever last for about three weeks. Convalescence is slow and is characterized by great weakness and disability, which may continue for two or three months. Most patients recover without permanent ill effects, but about 5 per cent die, notably those in whom pneumonia develops. One attack of the disease confers immunity. Hunters, vacationists, butchers, housewives and laboratory workers who handle rabbits and other wild game are especially exposed to tularemia. A wild rabbit should never be handled with bare hands. Only immune persons should be employed in laboratories. The infected meat is rendered safe as food by thorough cooking. Refrigeration for ordinary periods does not kill the tularemia organism. There is no specific preventive or curative treatment for the disease.

55:711-750 (April 26) 1940

Administrative Factors Involving Effectiveness of Communicable Disease Control. E. A. Lane.—p. 711.
Cerebrospinal Pathology of Experimental Poliomyelitis in Eastern Cotton Rat, Sigmodon Hispidus Hispidus, and in White Mouse, Mus Musculus. R. D. Lillie and C. Armstrong.—p. 718.
Note on Pathology in Monkeys of the Lansing Strain of Poliomyelitis Virus Before and After Passage in Cotton Rat. J. H. Peers.—p. 726.
Highly Virulent Strain of Rocky Mountain Spotted Fever Virus Isolated in the Eastern United States. N. H. Topping and R. E. Dyer.—p. 728.
*Cancer Mortality in the United States According to Site, by Sex and Age, 1938.—p. 731.

Cancer Mortality in the United States.—Statistics recently issued by the U. S. Bureau of Census record a total of 149,214 deaths from cancer in this country in 1938; 69,857, or 47 per cent, of these occurred in men and 79,357, or 53 per cent, in women. During the four years 1934-1938 the increase in recorded mortality from cancer amounted to 10.5 per cent, as compared with an estimated increase of 2.8 per cent in the population. An increase of 13 per cent is shown for men as compared with 9 per cent for women. The largest percentage increase was recorded for cancer of the respiratory system (52 and 39 per cent for men and women respectively), while broad classification groups showed a decrease for cancer of the buccal cavity and pharynx (for both sexes) and cancer of the skin (for men only). Cancer of the digestive tract and peritoneum caused 47 per cent of the total cancer mortality in 1938. The number of deaths from cancer of the various sites in this classification increased 9.3 per cent for men and 6.8 per cent for women during the four years. Deaths from cancer of the genito-urinary organs (uterus excluded) increased by about 20 per cent for both sexes. Cancer of the uterus (which caused 20 per cent of all cancer mortality in women in 1938) increased 4 per cent, while cancer of the breast increased 10 per cent during the four years. Of the 149,214 deaths from cancer 719 were of patients less than 10 years of age, and respectively for the following decades: 743, 1,985, 6,296, 17,477, 31,541, 41,244, 35,871, 12,289, 1,000, and the age of forty-nine patients at death was not stated.

Radiology, Syracuse, N. Y.

34:391-520 (April) 1940

Roentgen Diagnosis of Strawberry Gallbladder. G. Levene, R. M. Lowman and E. G. Wissing, Boston.—p. 391.
Modifying Influences of Silicosis and Silicosis with Infection on Healthy Chest. E. P. Pendergrass and P. J. Hodes, Philadelphia.—p. 400.
Silicotuberculosis as Seen in a Large Industrial Center. B. H. Douglas and E. Tompkins, Detroit.—p. 405.
X-Ray Study of Effects of Industrial Gases on Human Lung. E. E. Evans, Deepwater, N. J.—p. 411.
Economic Features of X-Ray Protection. L. S. Taylor, Washington, D. C.—p. 425.
Preliminary Report of Effect of X-Rays on Tumor of Known Genetic Constitution. M. C. Reinhard and S. G. Warner, Buffalo.—p. 438.
Invaginated Appendical Stumps Roentgenologically Simulating Polypoid Neoplasms. H. M. Weber and C. A. Good Jr., Rochester, Minn.—p. 440.
*Roentgen Therapy for Painful Conditions of Bones and Joints. H. C. Ochsner and E. B. Mumford, Indianapolis.—p. 444.
Radium Therapy in Polypoid Ethmoiditis. G. A. Robinson, New York.—p. 449.
Distribution of Radiation in Pervaginal Roentgen Therapy. M. C. Morrison, London, Ont.—p. 451.
Experiences with Compression Device in Examinations of Alimentary Tract. R. Golden and P. C. Swenson, New York.—p. 457.
Some Uses of Spot Film in Roentgen Ray Examination of Gastrointestinal Tract. J. C. Bell, Louisville, Ky.—p. 469.
Value of Upright Position in Gallbladder Examinations. Alice Ettinger, Boston.—p. 481.
Polyps of Large Bowel. E. L. Jenkinson and W. L. Waskow, Chicago.—p. 489.
Simplified Planigraphy. D. Wheeler and E. W. Spencer, St. Boniface, Man.—p. 499.

Roentgen Therapy for Bone and Joint Pains.—Ochsner and Mumford report the results of roentgen therapy on ninety patients with osseous and joint pain from trauma, arthritis and infection. Of fifty-two suffering from pain as a result of trauma, twenty-seven had fractures, fourteen trauma but no fracture, five painful joints following surgical procedures, four were probably due to muscular strain, and two had painful extremities with limitation of joint motion following infected burns. Best results were obtained in cases of postoperative pain. Pain disappeared in only one of the patients with no specific injury other than possible muscular strain and three experienced no improvement. Of the twenty-seven patients with painful joints following fracture, 56 per cent obtained improvement while 64 per cent of the group with traumatic injuries but no fracture were improved. Amelioration of pain and diminution in stiffness occurred most frequently during treatment but in a number of instances was not appreciable until weeks afterward. Only 7 per cent had a temporary exacerbation of symptoms. In the traumatic group, with or without fracture, the improvement was in most instances permanent, although a few patients had recurrence of symptoms after three or four weeks. Two or even three courses of treatment were required to obtain optimal benefit. Of thirty-five patients suffering from arthritis bursitis, fibrositis, vertebral osteoporosis or sciatic neuritis, twenty-nine obtained some improvement. Eighty-seven per cent of the twenty-three patients with atrophic or hypertrophic arthritis obtained relief; in the atrophic group the improvement was marked in all but one of eight patients, and this patient was slightly improved. In general, more than one course of treatments was recommended for arthritis because of its chronic and recurrent nature. The effectiveness of roentgen therapy for cellulitis that sometimes follows dental extraction was demonstrated by the prompt relief of discomfort in one case. All patients were treated with roentgen rays generated at 200 kilovolts and 25 milliamperes of current. A filtration of 0.5 mm. of copper and 1 mm. of aluminum was used, with a skin target distance of 50 cm. and fields varying in size according to the part treated. Four applications of 100 roentgens have been given with an interval of two or three days between treatments. While the authors do not regard the method as a cure-all, they believe that more improvement was obtained than could have been effected by other therapeutic measures.

Rhode Island Medical Journal, Providence

23:61-74 (May) 1940

Pawtucket Medical Association. T. A. Krolicki, Pawtucket.—p. 61.
Management of Obstetric Hemorrhage. B. H. Buxton, Providence.—p. 63.

Rocky Mountain Medical Journal, Denver

37:313-392 (May) 1940

Significance of Minor Signs of Indigestion. I. S. Cutter, Chicago.—p. 331.
Carcinoma of Cervix Uteri. K. D. A. Allen, Denver.—p. 335.
Endocrine Interrelationships as Applied to Human Diabetes. A. Marble, Boston.—p. 340.
Urethral Calculus. W. G. Schulte, Salt Lake City.—p. 344.
Use of Insulin-Free Pancreatic Hormone in Treatment of Certain Types of Erythematous Skin Diseases: Preliminary Report. J. Rowlett and E. W. DeKay, Laramie, Wyo.—p. 347.
Stabilizing the Graduate Staff. Sister Mary Carolyn, Colorado Springs, Colo.—p. 350.

Surgery, St. Louis

7:485-646 (April) 1940

*Relative Value of Catgut, Silk, Linen and Cotton as Suture Materials. W. H. Meade, Jackson, Mich., and A. Ochsner, New Orleans.—p. 485.
Persistent Abdominal Fecal Fistulas Due to Regional Ileitis. L. Ginzburg, New York.—p. 515.
Congenital Anomalies of Anus and Rectum. E. A. Crowell and J. W. Dulin, Iowa City.—p. 529.
Lymphoid Tumors of Colon and Rectum: Report of Case of Simple Lymphoma of Rectum. H. T. Hayes, H. B. Burr, Houston, Texas, and L. T. Pruit, Beaumont, Texas.—p. 540.
Infections of Hand Following Human Bites. R. Cohn, San Francisco.—p. 546.
Pneumococcic Peritonitis: Its Present Status. L. E. Arnold, Dallas, Texas.—p. 555.
Enzyme Studies in Edema of Pancreas and Acute Pancreatitis. H. L. Popper, Chicago.—p. 566.
Diffusion of Pancreatic Enzymes Through the Intestinal Wall in Ileus. H. L. Popper, Chicago.—p. 571.
Effect of Predigested Food on Experimental Peptic Ulcer. E. S. Emery Jr., R. Zollinger and R. B. Rutherford, Boston.—p. 574.
Technic for High Intestinal Fistula: Experimental Method. R. Zollinger, E. S. Emery Jr. and R. B. Rutherford, Boston.—p. 579.
Peritoneoscopy in Gunshot and Stab Wounds of Abdomen. J. E. Hamilton, Louisville, Ky.—p. 582.
Histopathology of Old Anastomotic Wounds of Gastrointestinal Tract. G. F. Archer, Rochester, Minn.—p. 589.
Syndactylism with Absence of Pectoralis Major. J. B. Brown and F. McDowell, St. Louis.—p. 599.
Renal Colic Caused by Early Obstruction of Lower Urinary Tract: Report of Nine Cases. H. M. Weyrauch Jr., San Francisco, and S. McMahon, Durban, South Africa.—p. 602.

Relative Value of Suture Materials.—Meade and Ochsner studied the tensile strengths of catgut, silk, linen and cotton, and the tissue reaction and wound healing caused by each. Catgut was demonstrated to be (1) a strong suture before being placed in tissue, (2) absorbed at a variable rate which depends on its size, the chemicals present and the reaction of the individual, (3) a possible source of allergic reactions, (4) a deterrent in wound healing, (5) unreliable when knotted under tension unless triple or quadruple throws knots are tied and (6) above all, a possible cause of wound infection. Nonabsorbable suture materials can always be heat sterilized; they produce no allergic reactions, allow rapid wound healing and reliable square knots can be tied. While silk and linen show early decrease in tensile strength as compared to cotton, they also are stronger before implantation. Cotton and linen, as products of the field, may contain spore-forming anaerobic pathogens, but the average threads obtained on the market have not contained any pathogenic organisms. Silk contains the ordinary pyogens, but anaerobic organisms were not found. Chemically treated silk and catgut are proteins; the former, being nonabsorbable, excites must less tissue reaction. Sinuses may develop in wounds sutured with silk in the presence of infection (not contamination) and they will not heal until the suture is removed or expelled. There is little difference in the wound healing when serum-proofed and nonserum-proofed silk is used. Braided silk has greater tensile strength than twisted silk. Cotton shows much less tendency for tissue ingrowth than silk and therefore, in the presence of infection, is less likely to cause sinuses. Cotton is proposed as a pliable, easily sterilized, nonirritating, inexpensive suture of sufficient strength in the recommended sizes for most surgical procedures. It has been used in ninety-one surgical procedures, primary healing having taken place in eighty-eight. Halsted's silk technic is recommended not only for silk but also for cotton. The reaction of tissue to the implanted suture was graded according to the amount and persistence of leukocytic infiltration, amount of serum and fibrin, the appearance time of fibroblasts and length of time necessary to produce final healing. Catgut, by producing the most reaction and slowest healing, was graded 4, linen 3, silk 2, and cotton, producing the least reaction and earliest healing, 1.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

48:205-274 (April) 1940

*Trigeminal Neuralgia: Treatment by Novocain Injection of Trigger Zones; Pain Sources. W. K. Livingston, Portland, Ore.—p. 205.
Actinomycosis in Hawaii. H. C. Gotshalk, Honolulu, Hawaii, and C. J. Wilen, Hilo, Hawaii.—p. 212.
Relationship of Some Recent Advances in Basic Sciences to Gynecology. H. C. Falk and G. Blinick, New York.—p. 218.
Management of Occiput Posterior Position, with Special Reference to Pelvic Architecture. A. Weinberg, Far Rockaway, N. Y.—p. 227.
Cesarean Section with Peritoneal Exclusion and Ligation of Fallopian Tubes. S. S. Rosenfeld, New York.—p. 232.
Mutation of Genes by Irradiation. R. H. Fagan, Los Angeles.—p. 239.
Bubis Hysterectomy Knife. J. L. Bubis, Cleveland.—p. 243.
Surgical Approach to Hypertension: End Results of Sympathetic Surgery and X-Ray Therapy in Hypertension. F. M. Findlay, San Diego, Calif.—p. 244.
*Metabolic Disturbances Following Thyroidectomy. C. A. Nafe, Indianapolis.—p. 253.

Trigeminal Neuralgia.—Livingston states that injections of procaine hydrochloride for facial pain have given encouraging results in four typical cases of trigeminal neuralgia. He believes that the peripheral lesion acts merely as an irritative focus from which the centers are continually bombarded by afferent impulses. This bombardment eventually creates an abnormal internuncial activity within the thalamus, which discharges explosively whenever a particularly strong impulse or combination of impulses arrives at the proper instant. In the fully developed syndrome of trigeminal neuralgia the slightest stimulation of the trigger point might be sufficient to detonate the pain paroxysm. But if the afferent impulses cease because the source of irritation is removed or because the messages are repeatedly interrupted, the abnormal activity within the thalamus tends to subside and the paroxysmal pain disappears. The concept is hypothetical but is consistent with the following facts: 1. Patients with symptomatic trigeminal neuralgia, in whom the pains are indistinguishable from the idiopathic type, have been cured by removal of pathologic conditions of the teeth, jaws or sinuses. 2. Myositis of facial muscles may cause typical tic douloureux, and the pain disappears when the myositis is treated. 3. Alcohol injection of the main divisions of the fifth nerve or evulsion of more peripheral portions have resulted in a cure for variable periods of time. 4. The pain attacks starting in the distribution of one division of the nerve tend to spread until they eventually involve one or both of the other divisions. 5. The alcohol injection of the division first involved in the pain process may stop the pain in other divisions as well. 6. Repeated injections of procaine hydrochloride into trigger points may abolish the pain for variable periods of time.

Metabolic Disturbances Following Thyroidectomy.—Nafe summarizes end results of thyroidectomy as practiced by several surgeons during the last few years at the three Indiana University hospitals. These surgeons are in accord with the general tendency toward subtotal thyroidectomy; leaving a small amount of tissue, particularly in diffuse hyperplasia or exophthalmia. The surgeon need not be quite as conservative in removing hyperplastic goiters of young patients as he formerly was. The incidence of recurrences may be improved by more radical surgery, but the small percentage of recurrences does not justify a total thyroidectomy. While they have not done a total thyroidectomy, a hypothyroid state has developed rather frequently following a radical type of subtotal thyroidectomy. The major portion of these patients readjust themselves in a few months, probably by hypertrophy of the remaining gland, and only a few need thyroid extract permanently. The medical staff has stated that they prefer to treat a hypothyroid patient following surgery rather than one who still has hyperthyroidism. Sufficient thyroid tissue is left so that most patients will have a normal or slightly subnormal basal metabolic rate. They believe that by limiting surgical intervention to patients with definite thyroid disease the incidence of many indefinite symptoms that follow such intervention will be lessened. Many of these symptoms may be due to metabolic disturbances, particularly those of mild hypothyroidism. Varying degrees of hypothyroidism or myxedema occur following thyroidectomy and are frequently overlooked. Many patients are relieved by careful administration of thyroid. Severe myxedema that cannot be satisfactorily managed is occasionally an end result. It should not be precipitated intentionally by complete thyroidectomy.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

13:109-148 (April) 1940

Radiologic and Clinical Study of Aortic Aneurysm. G. Friedlaender.—p. 109.
Radiographic Mensuration and Localization: New Method. J. P. Hederman.—p. 123.
Radiography of Subarachnoid Cisternae at Base of Brain. A. Schüller.—p. 127.
Note on Clinical Dosemeters. C. E. Eddy.—p. 130.
Physical Investigation of Radiation from Low Voltage X-Ray Tube (Cautery Technic). L. F. Lamerton.—p. 136.
Model Head and Dose Finder. F. W. Spiers.—p. 147.

British Journal of Urology, London

12:1-74 (March) 1940

Complicated Injuries of Urinary Tract. G. Gordon-Taylor.—p. 1.
Injuries of Urethra. A. R. Thompson.—p. 29.

British Medical Journal, London

1:601-644 (April 13) 1940

The Life and Work of Moynihan. E. W. H. Groves.—p. 601.
Isolation of Typhoid, Paratyphoid and Dysentery Bacteria from Feces and Urine: Comparative Study of Some Culture Mediums. A. Charlotte Ruys.—p. 606.
Common Cause in Functional Insanities. T. C. Graves.—p. 608.
Occipitoposterior Position: Review of 415 Cases. J. B. Dawson.—p. 612.
Report on Case of Psittacosis. R. B. McMillan.—p. 613.

1:645-678 (April 20) 1940

Kidneys and Sex Hormones. V. Korenchevsky and M. A. Ross.—p. 645.
The Life and Work of Moynihan. E. W. H. Groves.—p. 649.
*Closed Plaster Method of Treatment: Account of Its Use During the Spanish War. J. D'Harcourt, A. Folch and A. Oriol.—p. 652.
Schick Immunity After Active Immunization Compared with That Following Diphtheria. J. F. Warin.—p. 655.

Closed Plaster Method of Treatment.—During the Spanish Civil War, D'Harcourt and his associates were personally responsible for the treatment of 7,500 fracture casualties and they followed up a further 17,000 cases treated in other centers. As a result of their experience the closed plaster method of treating fractures was extended to the treatment of injuries to soft tissues in cases in which there was much loss of substance. The method was used both at an early stage (within six or eight hours of the infliction of the wound) and at a later stage when the wound had already begun to granulate. Only slight variations in technic were required for the two types of cases. The technic permits a high degree of conservative treatment. Thus, in the Battle of Ebro, a surgical unit dealt with 120 casualties, and in only five cases were amputations necessary. At the Vallcarca Hospital, Barcelona, out of 5,000 wounded treated in one year (almost exclusively fracture cases) only twenty-six secondary amputations were performed, and only few serious complications were encountered. There were twenty cases of gas gangrene, twelve of which showed vascular lesions. The number of deaths among the 5,000 was thirty-seven, fifteen due to gas gangrene, seventeen to septicemia and five to secondary hemorrhage. There were no instances of nonunion or malunion from a faulty position of the fragments, although in a number of comminuted fractures many broken pieces of bone had lost all nutrient connection. The few cases of nonunion have been in the forearm and have occurred when an extensive loss of substance was present. The cases of osteomyelitis complicating fractures have not been serious but they were persistent. The closed method of treatment did not have any definite detrimental or beneficial effect on this complicating sequel of gunshot wounds. The method reduces the period of healing, particularly that of the preliminary stage of disintegration. The strict immobilization of the wound insures a faster growth of epithelium. The treatment eliminates the painful daily dressings and thereby prevents the distribution and absorption of products of disintegration from constant handling. Proteolysis does not occur. The method does not interfere with the natural process of healing by the application of antiseptics, which, however

destructive they may be to bacteria, are also destructive to those biologic products which promote healing. Dehydration due to evaporation at the surface of large wounds is considerably reduced, and this in itself is an important factor in the healing of the wound and in the restoration of the patient's health.

Lancet, London

1:725-770 (April 20) 1940

The First Seven Months Study of Wartime Mortality in London. P. Stocks.—p. 725.
Mental Illness as Clue to Normality. S. Taylor.—p. 730.
*Vitamins as Supplement to Sanocrysin in Arthritis. K. Secher.—p. 735.
Posture for Thigh Amputation: Note on Sepsis. A. K. Henry.—p. 736.
Pellagra, Polyneuritis and Beriberi Heart. S. B. B. Campbell and R. S. Allison.—p. 738.
Treatment of Varicose Ulcers with Histamine Iontophoresis. S. V. Gould-Hurst.—p. 739.

Vitamins as Supplement to Sanocrysin in Arthritis.—Secher directs attention to the importance of using large doses of vitamins A, B and C as a supplement to treatment with sanocrysin (a double thiosulfate of sodium and gold) in patients with arthritis. Many of the reactions brought about by treatment with sanocrysin are similar to those due to a deficiency of vitamins and the diet of the general population is often deficient in these. The importance of the administration of vitamins during treatment with sanocrysin is confirmed as regards thrombopenia and cutaneous reactions, in which ascorbic acid acts beneficially. Decreased tolerance of carbohydrates can be abolished in many infectious diseases by increasing the amount of ascorbic acid in the blood.

Medical Journal of Australia, Sydney

1:501-534 (April 13) 1940

The Future of Medical Practice. S. Boyd.—p. 501.
*End Results of Surgical Treatment of Thyrotoxicosis. H. R. G. Poate and N. R. Wyndham.—p. 505.
Some Recent Views on Varicose Veins of Lower Limb. C. H. W. Lawes.—p. 509.
Shelf Operation for Congenital Dislocation of Hip. E. F. West.—p. 513.
Morton's Metatarsalgia: Neuritis of Fourth Digital Nerve. L. O. Betts.—p. 514.

End Results of Surgical Treatment of Thyrotoxicosis.—The clinical material on which Poate and Wyndham base this report consisted of 413 patients observed at the Royal Prince Alfred Hospital from 1925 to 1937. Only 317 were available for follow-up examination from two to fourteen years after operation. Complete freedom from symptoms was obtained in 220 (69.4 per cent), mild symptoms were present in forty-eight (15 per cent) and unsatisfactory results in forty-nine (15.4 per cent). An important lesson learned from the first group was that treatment and careful attention should not cease on discharge from the hospital. It is necessary to watch and advise each patient for about two years during the stage of readjustment. Close cooperation between physician and surgeon is of benefit to both as well as to the patient. Patients with mild symptoms are capable of doing a normal day's work. Their complaints may be due to one of the following: residual thyrotoxicosis, hypothyroidism, hypoparathyroidism, diminished cardiac efficiency, neurasthenia, or causes not associated with the original illness. With careful after-treatment, many of these patients will be included in the group of perfect cures. When mild symptoms are present hypothyroidism is commoner than persistent thyrotoxicosis. One third of the patients have this condition and are responding to thyroid administration. Two patients were successfully treated for hypoparathyroidism. The group with unsatisfactory results includes thirteen patients who died within a few days of operation, six patients who died after leaving the hospital and thirty who are still living but who cannot lead a normal life. Observations on thirty-four patients with auricular fibrillation convinced the authors that fibrillation depends more on the heart than on the thyroid gland. In 59 per cent of such cases normal rhythm was restored. It is impossible to foretell the subsequent condition of the eyes. Examination of fifty patients with pronounced preoperative exophthalmos selected at random revealed the following facts: the eyes of twenty-three patients were normal, of sixteen improved, of six not improved and of two the condition was worse.

Dermatologica, Basel

81:153-216 (March) 1940

*Parrot's Pseudoparalysis in Pair of Twins of Same Sex. E. Kuznitzky.—p. 153.
Question of Congenital Transmissibility of Venereal Lymphogranuloma. N. Melczer and K. Sipos.—p. 163.
Comparison of Relationship Between Blood Indican and Alkali Reserve in Internal and Dermatologic Syphilologic Cases. B. Ottenstein and R. Ethem.—p. 170.
Sulfanilamide Treatment of Chancroid and Chancroidal Bubo. C. S. Pan and K. L. Yang.—p. 181.

Parrot's Pseudoparalysis in Twins.—Kuznitzky reports that a pair of twins, females, were born one month prematurely with two chorions and two amnions. The mother had latent syphilis with positive reaction. At birth the infants were free of congenital syphilis. In the third and fourth week a slight increase of temperature and on the thirty-eighth day a slightly positive Wassermann reaction were observed. At the age of 6 weeks both twins displayed suddenly the symptoms of Parrot's pseudoparalysis. They had coryza at the same time. The Wassermann reaction became decidedly positive. With antisyphilitic therapy the temperature returned to normal almost immediately and the symptoms disappeared in four weeks. The Wassermann reaction became negative in five months.

Rivista Ospedal. Giorn. di Med. e Chir., Rome

30:57-102 (Feb.) 1940

*Roentgen Therapy of Fissured Nipples. R. Astolfi.—p. 57.
Calcification of Male Internal Genitalia. G. Parola.—p. 64.

Roentgen Irradiation of Fissured Nipple.—Astolfi reports satisfactory results from roentgen irradiations of fissured nipples in a number of cases observed at the obstetric-gynecologic clinic of Perugia. The irradiations were limited to a field measuring 6 by 8 cm. The tissues surrounding the field of irradiation were protected by dry sterile gauze. The dose for each irradiation was 80 roentgens given with a current of 120 kilowats through a filter of 1 mm. of aluminum with 2 milliamperes at a focal distance of 23 cm. from the skin. One treatment was generally sufficient. When more than one was necessary, they were given at intervals of three days and varied from two to three in number. No other treatment was administered. The treatment proved harmless to mother and infant. It can be administered to ambulant mothers and does not interfere with lactation. Pain is attenuated and sometimes controlled a few hours after the first irradiation. The fissures are promptly epithelized.

Archiv für Kinderheilkunde, Stuttgart

119:65-112 (March 8) 1940

Feeding of Prematurely Born Infants. K. Schwartzer.—p. 65.
Sudden Deaths in Presence of Congenital Megacolon. W. Jäckli.—p. 76.
Congenital Total Prolapse of Uterus. W. Kiehl.—p. 82.
*Thermobacterium Acidophilum in Therapeutic Experiments on Nurslings and Young Children with Dyspepsia. G. Henneberg.—p. 85.

Thermobacterium Acidophilum in Dyspepsia of Nursling.—Henneberg treated twenty-two nurslings suffering from dyspepsia, one from paratyphoid Breslau infection and one from severe eczema with thermobacterium acidophilum grown in gruels such as oatmeal containing 5 per cent dextrose and incubated for twenty-four hours at a temperature of from 34 to 40 C. The bacteria were thus given in a food which favors their growth in the hope that a further growth might be promoted in the intestine. The infants were given from 10 to 15 cc. of the mixture in from one to three doses of 5 cc. each daily. Later this quantity was increased to from one to three doses of 10 cc. daily, then to two or three doses of 20 cc. and to three doses of 25 cc. The duration of the administration varied. The total quantity of gruel varied between 30 and 2,400 cc. Injurious effects were never observed. The bacterial flora was controlled by means of Henneberg's cover glass-agar method. In eight cases the administration of Thermobacterium acidophilum was followed by a noticeable improvement in the stools and in the clinical course, although the Thermobacterium failed to be detected in large quantities. The clinical improvement was probably caused by the acidifying

effect of Thermobacterium acidophilum on the lactic acid contained in the food. It had not been possible to replace the prevailing disease flora by the therapeutically introduced flora. The author thinks that such a result could be expected only after longer treatment.

Chirurg, Berlin

12:113-144 (March 1) 1940

*Trauma and Diabetes. A. Troëll.—p. 113.
When Is Myelography Indicated? W. Tönnis.—p. 119.
Stereoroentgenography of the Foramen Ovale in Bloodless Treatment of Trigeminus Neuralgia. L. Stehr.—p. 122.
Value of Roengenograms in Rectal Carcinomas. H. Rüd.—p. 126.

Trauma and Diabetes.—Troëll studied the question of somatic trauma as a causative or aggravating agent in diabetes in eight cases, with special reference to eligibility for accident insurance of persons so injured. Trauma which induced a temporary glycosuria or damaged the pancreas directly was excluded from the investigation. The traumas consisted of injuries to the feet, an elbow fracture with facial contusions, injury to the region of the liver and serious injuries to the head and the cervical vertebrae, sustained in a fall from a motorcycle. One patient, a man aged 22, had been medically examined the day before a fall from the bicycle had broken his elbow and bruised his face. No sugar had been found in the urine nor did a familial history of diabetes exist. Injury of the pancreas due to the fall was regarded as improbable. Yet several weeks later a benign diabetes developed that, at the time of writing, was some three years old, requiring insulin dosage and a special diet. In the case presenting serious head and neck injuries (65 years) no glycosuria had been discovered one and one half years after the fall. Yet six months later it was so diagnosed. In two known cases of diabetes the diabetes seems to have retarded the recovery from injuries to the feet. The author believes that severe peripheral lesions to the head, liver and extremities may be assumed to induce genuine diabetes by way of the sympathetic nervous system and, consequently, entitles to accident insurance compensation. The same economic evaluation of accidents, he thinks, should prevail in cases in which latent diabetes may be presumed because of familial involvement and in the diabetes of aged patients whose condition has either been aggravated by the trauma or the healing delayed.

Deutsches Archiv für klinische Medizin, Berlin

186:1-112 (March 7) 1940. **Partial Index**

Significance and Utilization of Data Obtained in Work Tests in Research on Clinical Aspects of Pulmonary and Circulatory Disorders. G. Zaeper.—p. 1.
Flocculation of Soluble Proteins of Aorta by Ammonium Sulfate Under Normal and Pathologic Conditions: Method, Experience on Normal Conditions and Principles. G. Schönholzer.—p. 27.
*Investigations on Pulmonary Function in Asbestosis. L. Roemheld, H. Kempf and H. W. Wedler.—p. 53.
Investigations on Vascular Elasticity in Arteriosclerosis: Studies on Elasticity in Healthy Persons and in Patients with Arteriosclerosis with Normal Blood Pressure. B. Steinmann.—p. 71.
*Clinical and Morphologic Considerations of Hodgkin's Disease. W. Tischendorf.—p. 98.

Pulmonary Function in Asbestosis.—According to Roemheld and his associates the relatively slight clinical symptoms of asbestosis are frequently in contrast to serious impairment of function. A divergence between the x-ray appearances and the clinical picture is likewise frequent. The degree of functional impairment which is the decisive factor in the working capacity of the patient is difficult to determine. The authors determined the oxygen consumption during the breathing of air and of oxygen in nineteen cases of asbestosis by means of Knipping's large spirograph. The tests revealed that during rest the lung could not fulfil the task of saturating the blood with oxygen. The authors also determined the respiratory frequency, depth of respiration, respiratory minute volume, vital capacity, respiratory limit and respiratory time quotient. Some of these factors were determined again after ergometrically measured exertions. Electrocardiograms, roentgenograms and thorough clinical examinations were made. There was considerable conformity between the spirographic data and the severity of the clinical picture. The spirographic examination permits an estimation of the pathologic changes and reveals the extent of pulmonary insufficiency. Failure of pulmonary function is of great importance in asbestosis, because limitation of the respiratory reserve and deficient oxygenation of the blood are the causes of decreased working capacity at a time when their circulation is still able to meet greater demands.

Hodgkin's Disease.—Attention has been called in recent years to the similarity of Hodgkin's disease to a neoplasm. The disease frequently has its origin in a localized area at a site where large quantities of lymphatic tissue are found, such as the mediastinum, the mesenteric lymph nodes or the faucial lymphatic ring. The impression is gained that the disease begins locally and metastasizes like a malignant neoplasm. Tischendorf cites one case the clinical and roentgenologic features of which were like those of a malignant neoplasm. In another case the roentgenologic and clinical signs suggested Hodgkin's disease but the necropsy disclosed a malignant mediastinal tumor. Two cases are cited to demonstrate that the course and anatomic picture of Hodgkin's disease may greatly resemble a malignant neoplasm. Microscopic examination of a lymph node is a distinct diagnostic advance. Lymph node or tissue puncture presents further advance in diagnosis. Experience with the method in various lymph node disorders convinced the author of its reliability. It is as reliable as lymph node biopsy provided that, besides the tissue smears, one makes histologic preparations from the punctate. Such preparations reveal the large Sternberg giant cells. Typical cases present spindle shaped fibroblasts, large epithelioid and histocytic cells, neutrophils and eosinophils. The tumor-like growth of the lymphomatous tissue with its apparent metastatic involvement and the characteristic morphologic appearances suggest a close relationship to neoplastic disease. The apparently benign course, frequently extending over eight or ten years, may be replaced by a malignant infiltrating growth in the terminal stage. During the benign course the process may simulate a lymphadenosis, but the microscopic examination discloses the true nature. A tumor-like character has been suggested also for leukemia, in which the enlargement of the lymph nodes is the result of the deposition of hematopoietic tissues whereas the glandular swellings of Hodgkin's disease are the result of the deposition of granulomatous tissue. Hodgkin's disease has been regarded as an infectious disease because of the resemblance of its lesions to ordinary granuloma and because of the febrile course. The infectious etiology has not been proved and the assumption of a tumor-like etiology is therefore justified.

Medizinische Klinik, Berlin

36:289-312 (March 15) 1940. **Partial Index**

Acute Circulatory Insufficiency During War. H. Dennig.—p. 289.
Surgical Therapy of Wounds During German-Polish War. O. Hoche.—p. 291.
Cutaneous Pigment. H. Fuhs.—p. 294.
*Further Observations on Interrelations Between Sympathetic Endocrine System and Vitamin Economy. W. Stepp and F. Diehl.—p. 296.
Treatment and Prevention of Nephrolithiasis. A. Pierach.—p. 298.
Hemorrhoids. R. Reichle.—p. 301.

Sympathetic Endocrine System and Vitamin Economy.—According to Stepp and Diehl, the endocrine glands are dependent for their function on an adequate vitamin supply. They investigated the carbohydrate metabolism from this point of view. They demonstrated in blood sugar curves following dextrose tolerance tests that it is possible to regulate abnormal sympathetic-hormonal control functions. In hypophysial insufficiency with a tendency to spontaneous hypoglycemia the blood sugar curve, following the dextrose tolerance test, could be normalized by the administration of the total vitamin B complex and of vitamin C. The formerly low apex of the curve was now higher and the abnormally deep hypoglycemic phase could be normalized. They demonstrated by means of patients with abnormal dextrose tolerance curves that the vitamin B complex has a better normalizing effect than vitamin C. The different factors of the B complex were not all equally effective; B_1 was found to be ineffective in spite of its well known relation to the carbohydrate metabolism. The simultaneous administration of riboflavin, nicotinic acid amide and vitamin

B_6 produced normalization. The authors conclude that an adequate provision of the organism with vitamins is essential for the normal functioning of the regulatory processes.

Münchener medizinische Wochenschrift, Munich

87:225-252 (March 1) 1940. **Partial Index**

Roentgen Therapy in Dementia Paralytica. F. Bering.—p. 229.
*Diabetes Mellitus and Pernicious Anemia. W. Beckert.—p. 230.
Myiasis Interna Due to Hypoderma Lineatum: Case. F. Tebbe.—p. 232.
Gastrointestinal Neurosis Due to Dysfunction of Eyes. K. Grunert.—p. 234.
Alkalization Therapy of Psychic Depressions. F. Hoff.—p. 237.

Diabetes Mellitus and Pernicious Anemia.—Beckert reports the simultaneous presence of pernicious anemia in nine (1 per cent) of 900 cases of diabetes. The predominant age level in the nine cases was between 30 and 50 years. Three cases were serious; six were mild. Six cases had been under observation for four years. In five cases the primary existence of diabetes could be verified, pernicious anemia having remained latent for from three to seven years. In one latent case funicular myelosis was discovered. The author did not observe that the presence of either disease led to the aggravation of the other, such as modification of the metabolism. In fact, serious cases of diabetes were observed to be accompanied with light attacks of anemia and vice versa. Only the spinal symptoms seemed to have been intensified. The theories advanced for the concurrent appearance of pernicious anemia in diabetes range from the assumption of an unrelated and fortuitous occurrence to that of gastric achylia frequently observed in diabetes. The infrequent evolution of pernicious anemia in the past is attributed by the author to the earlier decease of diabetic persons in the days when insulin was unknown. Insulin and liver extracts were found to be compatible therapies.

Wiener klinische Wochenschrift, Vienna

53:207-226 (March 15) 1940

Significance of Intestinal Indole Intoxication in Neuro-Endocrine Enteropathy (So-Called Chronic Enteritis). H. Bohn and R. Basler.—p. 207.
Changes in Deflections of Electrocardiogram of Hyperthyroidism. W. Breu and S. Zollner.—p. 216.
*Functional Examination of Kidneys and Intravenous Urography. K. Hutter.—p. 220.

Intravenous Urography.—Hutter maintains that the examination of the total function of the kidney is necessary whenever an intravenous urography is planned, for, if the kidneys are impaired to such an extent that an almost normal elimination of the intravenously administered contrast medium cannot be expected, not only the aim of the urography is unobtainable but there is also the danger of injuring the patient by the prolonged retention of the iodized contrast medium. Volhard's water test is used by the author for the routine examination of the renal function. He also determines residual nitrogen and the indican content of the blood serum, especially if the water test does not seem desirable. The water test was extended by combining it with tolerance tests. After a preliminary water test, the patients are given for two successive days 1,000 cc. of fluid and a prescribed diet and, in addition, 5 Gm. of sodium chloride the first day. The water test is repeated and the residual nitrogen and the indican content of the blood are determined. This makes it possible to detect (1) normally functioning kidneys and (2) kidneys with a latent impairment of the function, in which normal or almost normal values are obtained in the first test, but abnormal values after the tolerance test. Intravenous urography is contraindicated not only in the case of impairment of the total renal function but also in acute nephritis and in patients with a predisposition to thrombosis. It is indicated in phimosis, stricture of the urethra, chronically contracted or acutely infected bladder and stenosis of the ureter. Intravenous urography may not reveal stones, but it is helpful in the detection of hypotonic conditions. The psoas rim symptom is of value in determining whether a hypotonic condition is due to mechanical or to dynamic causes. It is not a case of rivalry between intravenous and instrumental urography; each method has its indications. Kymographic examinations are especially valuable in estimating retroperistalsis.

Nordisk Medicin, Gothenburg

5:425-490 (March 9) 1940. **Partial Index**

Hygiea

*Postoperative Causes of Death in Lund Surgical Clinic. G. Petrén.—p. 468.
Tetanus. S. Lindgren.—p. 473.
More Recent Views on Psychiatric Doctrine of Heredity. E. Essen-Möller.—p. 478.

Postoperative Causes of Death in Lund.—Petrén finds that of the 1,265 postoperative deaths after 24,816 surgical operations from 1929 to 1938 53 per cent occurred from the basic disorder, the basic injury or a complication peculiar to the disorder or injury, and 21 per cent from a pulmonary complication, most often pneumonia or pulmonary embolism. Of the patients with fatal pneumonia 86 per cent were 55 or over, almost half were 70 or over, and 68 per cent of those with pulmonary embolism were 60 or over. In the remaining 26 per cent death was due either to wrong or to questionable indication for operation, with some of the patients for various reasons too weak for the operation performed, or to a technically faulty operation or to some special postoperative complication, not pulmonary.

5:491-550 (March 16) 1940. **Partial Index**

Hospitalstidende

*Blood Type Determinations in Southern District of Julianehaab, West Greenland (ABO and MN System). V. Fabricius-Hansen.—p. 497.
New Arc Light with Alternating Current for Medical Use. F. Nielsen and K. G. Hansen.—p. 499.

Blood Types in Southwest Greenland.—Fabricius-Hansen determined the blood grouping of 1,063 persons in this region and found that the distribution of blood types in the pure Eskimos differes from that in the more mixed Greenlanders. Of the former 36.33 per cent were O, 54.64 per cent were A, 5.30 per cent were B and 3.71 per cent were AB, while of the latter 55.05 per cent were O, 36.70 per cent were A, 5.26 per cent were B and 2.99 per cent were AB. Of the pure Eskimos 66.16 per cent were M, 30.97 per cent MN and 2.86 per cent N, which, the author says, confirms his earlier observation that a low N value is an anthropological characteristic of the Greenland Eskimo.

5:551-592 (March 23) 1940. **Partial Index**

*Reticulosarcoma and Reticulo-Endotheliosarcoma in Tonsils and Rhinopharynx. S. Ohlsen and A. Jørgensen.—p. 555.

Reticulosarcomas in Tonsils and Rhinopharynx.—According to Ohlsen and Jørgensen reticulosarcomas may occur wherever there is lymphatic tissue. About 40 per cent of the cases are found in the tonsils and about 20 per cent in the rhinopharynx (Greifenstein). Ewing's sarcoma, which originates in the bone marrow, has the same histologic structure as the reticulosarcomas they describe. Ewing's sarcoma is seen in the younger age groups, the reticulosarcoma usually between the ages of 50 and 70. The clinical picture does not differ from that of other primary malignant tumors with the same localization, and as a rule macroscopic diagnosis is impossible. The growth of the tumor may be slow and the tendency to ulceration and necrosis less than in cancer. If the tumor is infected, growth may be accelerated. Reticulosarcomas are highly sensitive to roentgen rays. If there is a suspicious unilateral tonsillar tumor the authors would perform a tonsillectomy rather than wait for the results of microscopic examination of a specimen. Recognition of the tumor in the rhinopharynx is late and difficult, as the symptoms are vague and not characteristic. If diagnosis of reticulosarcoma or reticulo-endotheliosarcoma has been made by microscopic examination of a lymph node from the neck, a small tumor should be carefully looked for in the rhinopharynx. Treatment is protracted roentgen irradiation, to be instituted as early as possible. Nine cases of reticulosarcoma, all localized in one tonsil, are reported; in eight there were ulcerations, in six enlarged regional lymph nodes. In five cases the treatment was primary tonsillectomy followed by roentgen or radium treatment, in four cases roentgen treatment alone. Four patients are well after an observation period of from one and a half to five years. One case is still under treatment. One case of reticulosarcoma and one of reticulo-endotheliosarcoma in the rhinopharynx are described, both fatal.